EV-S7000
RMT-V147

SERVICE MANUAL

US Model
Canadian Model

Remote commander is available as a unit, See page 5-1 for repair parts.

video Hi8

F MECHANISM

For **MECHANICAL ADJUSTMENT**, refer to the "8mm Video **MECHANICAL ADJUSTMENT MANUAL** V (F MECHANISM)" (9-973-445-11).

SPECIFICATIONS

System

Video recording system
Rotary two-head helical scanning FM system

Audio recording system
Standard: Rotary head FM system (2 channels)
PCM: PCM system (2 channels)

Video signal
NTSC color, EIA standards

Usable cassettes
8 mm video format cassettes

Tape speed
SP: 14.3 mm/sec.
LP: 7.2 mm/sec.

Recording/playback time
SP: 2 hrs., LP: 4 hrs. (using a Sony E6/P6-120 cassette)
SP: 3 hrs., LP: 6 hrs. (using a Sony E6-180 cassette)

Fast-forward/rewind time
2 min. 15 sec.
1 min. (high-speed rewind)
(using a Sony E6/P6-120 cassette)

Channel coverage
VHF 2 to 13
UHF 14 to 69
CATV A – 8 to A – 1, A – W, W+1 to W+84

Inputs and outputs

Antenna
75-ohm asymmetrical antenna terminal for VHF/UHF

LINE IN 1 and 2
S VIDEO IN (4-pin mini DIN) 1 each
Y: 1 Vp-p 75 ohms (unbalanced), sync negative
C: 0.286 Vp-p (color burst) 75 ohms (unbalanced)
VIDEO IN (phono jack) 1 each
Input signal: 1 Vp-p, 75 ohms (unbalanced), sync negative
AUDIO IN (phono jack) 2 each
Input level: –7.5 dBs
(0 dbs = 0.775 Vrms)
Input impedance: more than 47 kilohms

LINE OUT 1 and 2
S VIDEO OUT (4-pin mini DIN) 1 each
Y: 1 Vp-p 75 ohms (unbalanced), sync negative
C: 0.286 Vp-p (color burst) 75 ohms (unbalanced)
VIDEO OUT (phono jack) 1 each
Output signal: 1 Vp-p, 75 ohms (unbalanced), sync negative
AUDIO OUT (phono jack) 2 each
Output level: –7.5 dBs
(0 dbs = 0.775 Vrms)
Output impedance: less than 10 kilohms.

Microphone input
Minijack –60 dBs, for low impedance microphone

Headphone jack
Stereo minijack –26 dBs, 8 ohms

CONTROL S IN
Minijack

LANC ᑕ
Stereo mini-minijack

—continued on next page—

MICROFILM

Hi8 VIDEO CASSETTE RECORDER

SONY®

General

Power requirements
120 V AC, 60 Hz

Power consumption
31 W

Operating temperature
5°C to 40°C (41°F to 104°F)

Storage temperature
–20°C to 60°C (–4°F to 140°F)

Dimensions
Approx. 466 × 119 × 366 mm (w/h/d)
(Approx. 18 3/8 × 4 3/8 × 14 1/2 inches) including projecting parts and controls

Weight
Approx. 8.5 kg (18 lb 12 oz)

Supplied accessories

Remote commander (1)
Size AA (R6) batteries (2)
Cable mouse (1)
75-ohm coaxial cable with F-type connectors (1)
S-video cable (1)
Audio/video cable (1)
AC power cord (1)
LANC cable (1)

Design and specifications are subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

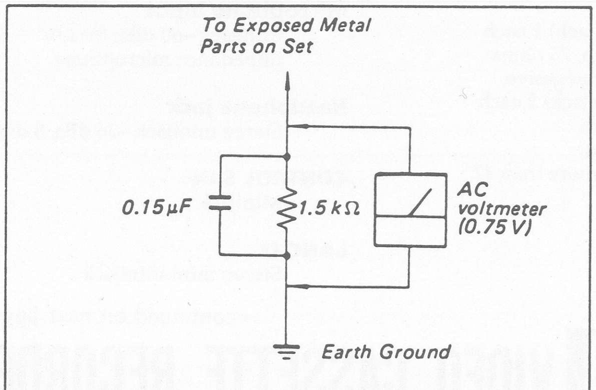


Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

TABLE OF CONTENTS

Section *Title* *Page*

SERVICE NOTE

1. Removal of Cassette at Failure with Cassette Inserted 5
2. Replacement of External Parts 5
3. Replacement of Cassette Door Assembly 5
4. Cleaning of Video Head and Run System 6
5 Replacement of Upper Rotary Drum 6

1. GENERAL

- Index to Parts and Controls 1-1
- Welcome! 1-4
- Hi 8 (high eight) Video System 1-5
- STEP 1•Unpacking 1-5
- STEP 2•Setting up the Remote Commander 1-6
- STEP 3•Hookups 1-7
- Setting the clock 1-14
- Presetting Channels 1-14
- Setting up Cable Box Control 1-16
- Setting up VCR Plus+ 1-17
- Using the SET UP Menu 1-18
- Playing a Tape 1-19
- Recording TV Programs 1-21
- Recording TV Programs Using the Timer 1-23
- Recording TV Programs Using VCR Plus+ 1-24
- Checking/Cancelling Timer Settings 1-25
- Playing/Searching at Various Speeds 1-26
- Adjusting the Picture 1-27
- Searching Using the Index Function-Index Search 1-29
- Shuttle Editing 1-31
- Editing with Another VCR 1-32
- Synchronised Editing 1-33
- Assemble Editing 1-35
- Audio Dubbing 1-37
- General Setup Information 1-38

2. DISASSEMBLY

2-1. Removal of Cabinet Assembly 2-1
2-2. Removal of FL-57 Board and FR-82 board 2-1
2-3. Removal of FJ-13 Board and Bottom Plate 2-2
2-4. Removal of FM-16 Board and Control Switch Block 2-2
2-5. Removal of TU-145 Board and DI-51 Board 2-3
2-6. Removal of CB-46 Board 2-3
2-7. Removal of PS-313 Board 2-4
2-8. Removal of PC-61 Board 2-4
2-9. Removal of VI-121 Board and MA-173 Board 2-5
2-10. Removal of Mechanical Block and Cassette Compartment 2-5
2-11. Tray Chassis Internal Views 2-6
2-12. Mechanical Internal Views 2-6
2-13. Circuit Boards Location 2-7

Section *Title* *Page*

3. BLOCK DIAGRAMS

3-1. Overall Block Diagram 3-1
3-2. Head Amp Block Diagram 3-6
3-3. Video Block Diagram 3-7
3-4. Digital Block Diagram 3-11
3-5. Servo/System Control Block Diagram 3-14
3-6. Timer/Tuner/Mode Control Block Diagram 3-17
3-7. AFM Audio Block Diagram 3-22
3-8. PCM Audio Block Diagram 3-25
3-9. Tuner Block Diagram 3-27
3-10. Power Block Diagram 3-30

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. Frame Schematic Diagram 4-1
4-2. Printed wiring Boards and Schematic Diagrams 4-5
- This Note is Common for Printed Wiring Boards and Schematic Diagrams 4-5
- RP-165 Board 4-6
- VI-121 Board 4-14
- DI-51 and WC-10 Boards 4-24
- MA-173 Board 4-33
- PC-61 Board 4-59
- FM-16, TK-26, SW-227 and TM-119 Boards 4-65
- Control Switch Block, MD-59 and VP-40 Boards 4-74
- FR-82 and FL-57 Boards 4-82
- FJ-13 Board 4-89
- CB-46 Board 4-93
- TU-145 Board 4-96
- PS-313 Board 4-101

4-3. Semiconductors 4-106

5. REPAIR PARTS LIST

5-1. EXPLODED VIEWS 5-1
  5-1-1. Cabinet and Front Panel Assemblies 5-1
  5-1-2. Tray Chassis Complete Assembly 5-3
  5-1-3. Main Boards Assembly 5-4
  5-1-4. Cassette Compartment Assembly 5-6
  5-1-5. Mechanical Assembly (1) 5-7
  5-1-6. Mechanical Assembly (2) 5-8
  5-1-7. Mechanical Assembly (3) 5-9
5-2. ELECTRICAL PARTS LIST 5-10
  Hardware List 5-57

6. INTERFACE AND IC PIN FUNCTION

6-1. System Control—Video•Audio Block Interface 6-1
6-2. Mechanical Control—Servo Block Interface 6-2
6-3. Mechanical Control Micro Computer CXP87140 (MA-173 Board IC003) Port Function Description 6-3
6-4. Mode Control Micro Computer MB89096 (MA-173 Board IC002) Port Function Description 6-5
6-5. Timer/Tuner Control Micro Computer MB89096 (FM-16 Board IC101) Port Function Description 6-6
6-6. PCM/AFM Audio Output Control 6-7

Section *Title* *Page*

7. ADJUSTMENTS

SERVICE MODE 7-1
1. Senser Lanc 7-1
2. How to Use the RM-95 JIG 7-1
3. How to Change the Service Mode with RM-95 7-1
4. Senser Lanc Memory Map 7-2
5. EEPROM Write Protect 7-2
6. Test Mode Setting 7-3
7. Emergency Codes 7-3
8. D Page Memory Map 7-4
7-1. MECHANICAL ADJUSTMENTS 7-6
1-1. Tape Pass Adjustment 7-6
1-1-1. Setting the Track Shift Mode 7-6
1-1-2. Preparation before Adjustment 7-6
7-2. ELECTRICAL ADJUSTMENTS 7-7
2-1. Preparation before Adjustment 7-7
2-1-1. Equipment Required 7-7
2-1-2. Equipment Connection 7-8
2-1-3. Input Signal Check 7-9
2-1-4. Alignment Tapes 7-10
2-1-5. Input/Output Levels and Impedance 7-11
2-2. Power Supply Check 7-12
2-2-1. Output Voltage Check 7-12
2-3. System Control System Adjustments 7-12
2-3-1. Timer Clock Adjustment 7-12
2-4. Servo System Adjustments 7-13
2-4-1. PWM Frequency Adjustment 7-13
2-4-2. Switching Position Adjustment 7-13
2-4-3. CAP Duty Adjustment 7-14
2-4-4. SP/LP Discrimination Check 7-14
2-4-5. Slow Adjustment 7-15
2-5. Video System Adjustments 7-16
2-5-1. Playback Frequency Characteristic 7-16
2-5-2. Sync AGC Adjustment 7-17
2-5-3. Accel Y Level Adjustment 7-17
2-5-4. Accel C Level Adjustment 7-17
2-5-5. Chroma Comb Filter Adjustment 7-18
2-5-6. Pre-emphasis Input Level Adjustment 7-18
2-5-7. L Mode Y FM Carrier Frequency, Y FM Deviation Adjustment 7-18
2-5-8. E Mode Y FM Carrier Frequency, Y FM Deviation Adjustment 7-19
2-5-9. Chroma Emphasis Adjustment 7-20
2-5-10. L Mode De-emphasis Level Adjustment 7-20
2-5-11. L Mode Playback Level Adjustment 7-21
2-5-12. E Mode De-emphasis Level Adjustment 7-21
2-5-13. E Mode Playback Level Adjustment 7-21
2-5-14. Recording Chroma Level Pre Adjustment 7-21
2-5-15. Recording Y Level Adjustment 7-22
2-5-16. L Mode Recording Chroma Level Adjustment 7-22
2-5-17. E Mode Recording Chroma Level Adjustment 7-22
2-5-18. Y/Chroma Adjustment 7-23
2-5-19. Carrier Leak Adjustment 7-23
2-6. Digital System Adjustments 7-24
2-6-1. AFC Adjustment 7-24
2-6-2. APC Adjustment 7-25
2-6-3. Read Clock (YRCK) Adjustment 7-25
2-6-4. Y Output Level Adjustment 7-26
2-7. Character Generator System Check 7-27
2-7-1. CG OSC Check 7-27
2-8. PCM Audio System Adjustments 7-27
2-8-1. Master Clock Adjustment 7-28
2-8-2. Recording Level Adjustment 7-28
2-8-3. Offset Adjustment 7-28
2-8-4. Playback VCO Check 7-29
2-8-5. Playback Level Adjustment 7-29
2-8-6. E-E Output Level Check 7-29
2-8-7. Overall Frequency Characteristic Adjustment 7-30
2-8-8. Overall Distortion Factor Check 7-30
2-8-9. Overall Noise Level Check 7-30
2-9. AFM Audio System Adjustments 7-31
2-9-1. Carrier Frequency 1.5MHz Check 7-31
2-9-2. Carrier Frequency 1.7MHz Check 7-31
2-9-3. 1.5MHz Deviation Adjustment 7-32
2-9-4. 1.7MHz Deviation Adjustment 7-32
2-9-5. Playback Separation 2 Check 7-32
2-9-6. Playback Separation 1 Check 7-32
2-9-7. E-E Output Level Check 7-33
2-9-8. Overall Frequency Characteristic Check 7-33
2-9-9. Overall Distortion Factor Check 7-33
2-9-10. Overall Noise Level Check 7-33
2-10. Tuner System Adjustments 7-34
2-10-1. 30V Voltage Check 7-34
2-10-2. AGC Adjustment 7-34
2-10-3. Separation Check 7-34
2-11. Adjusting Parts Location Diagram 7-36

SERVICE NOTE

1. REMOVAL OF CASSETTE AT FAILURE WITH CASSETTE INSERTED

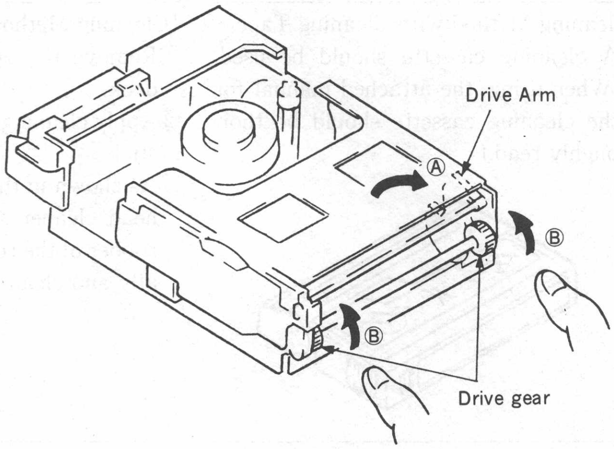
Ⓐ If tape is wounded on the drum and it cannot be removed: Rotate the capstan motor wheel in either direction and rotate the S or R reel to house the tape. Then, perform Procedure Ⓑ.

Ⓑ If tape is housed in the cassette half and cannot be removed:

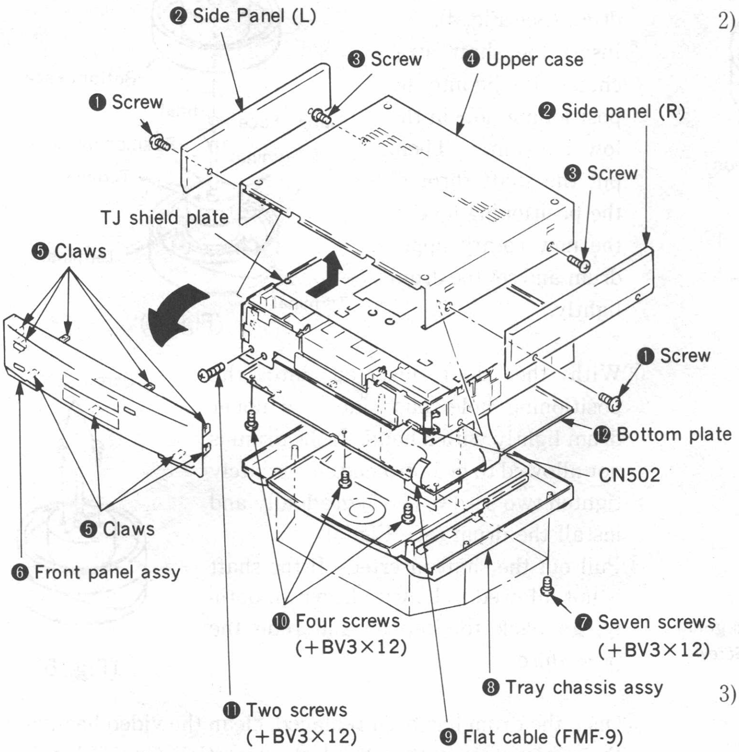
① Remove the MD block. (For removal, refer to Section 3-3.)

② Rotate the drive arms at both sides of L frame and cassette compartment in the arrow direction Ⓐ.

③ Rotate the connecting gear in the arrow direction Ⓑ with both the thumbs.


Drive Arm
Ⓐ
Ⓑ
Ⓑ
Drive gear

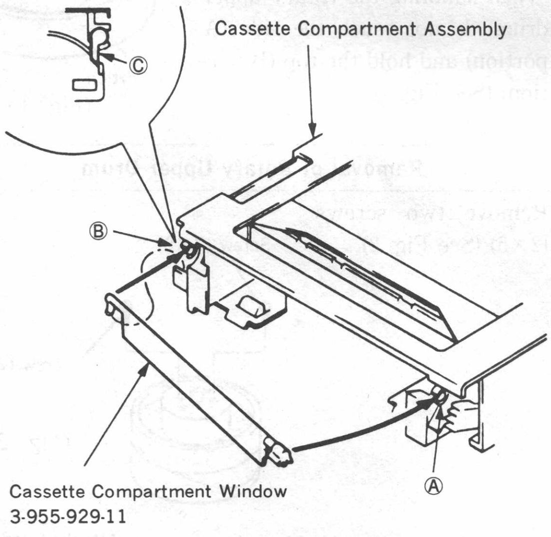
2. REPLACEMENT OF EXTERNAL PARTS


❷ Side Panel (L)
❸ Screw
❹ Upper case
❶ Screw
❷ Side panel (R)
❸ Screw
TJ shield plate
❺ Claws
❶ Screw
⓬ Bottom plate
CN502
❺ Claws
❻ Front panel assy
❿ Four screws (+BV3×12)
❼ Seven screws (+BV3×12)
❽ Tray chassis assy
⓫ Two screws (+BV3×12)
❾ Flat cable (FMF-9)

3. REPLACEMENT OF CASSETTE DOOR ASSEMBLY

1) Remove the front panel.

2) First undo Ⓐ portion toward you and then undo Ⓑ.


Ⓒ
Cassette Compartment Assembly
Ⓑ
Ⓐ
Cassette Compartment Window
3-955-929-11

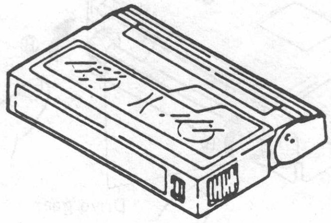
3) When installing, as shown above, first put in Ⓑ portion by setting the claw Ⓒ. Then, put in Ⓐ portion and install so that the door hangs almost vertically.

4. CLEANING OF VIDEO HEAD AND RUN SYSTEM

Method 1

〔Cleaning Method with Cleaning Tape〕

- A cleaning cassette should be used. (When using, the attached manual for the cleaning cassette should be thoroughly read.)



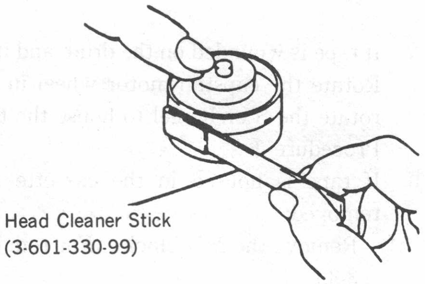
Method 2

〔Cleaning Method with Cleaning Liquid〕

①Remove the upper case of the video deck.

②Apply cleaning liquid to a head cleaner stick.

③As shown in the right figure, press the head cleaner stick lightly. Turn the rubber of the rotary upper drum gradually and clean the video deck.


Head Cleaner Stick
(3-601-330-99)

〔Cleaning Method for Run System〕

①Apply cleaning liquid to a head cleaner stick.

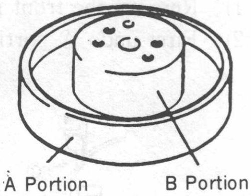
②Clean the guides which tape touches directly and the pinch roller with the head cleaner.

5. REPLACEMENT OF UPPER ROTARY DRUM

Method 3

Caution

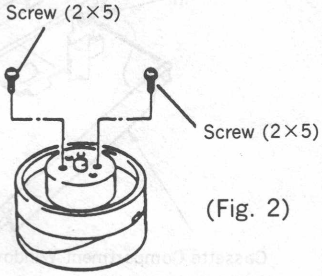
- Particular care must be taken when handling the video head and the terminals
- When handling the rotary upper drum, do not touch the side (A portion) and hold the top (B portion) (See Fig. 1)


A Portion
B Portion

(Fig. 1)

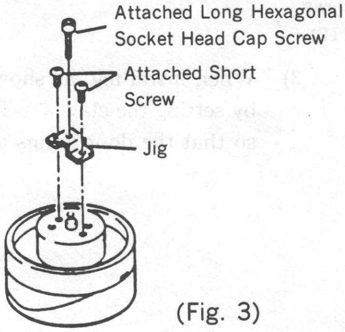
Removal of Rotary Upper Drum

①Remove two screws (2×5) (See Fig. 2).


Screw (2×5)
Screw (2×5)

(Fig. 2)

②Fix the jig (supplied with the spare rotary upper drum) with the two attached short screws. Then, put the attached long screw into the jig until the rotary upper drum may be removed (See Fig. 3).

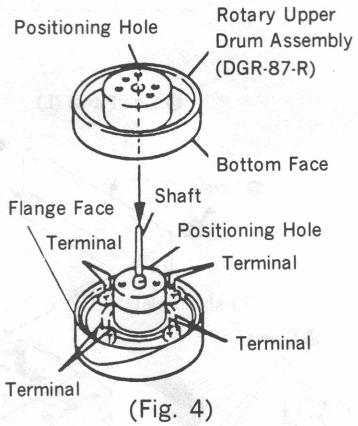

Attached Long Hexagonal Socket Head Cap Screw
Attached Short Screw
Jig

(Fig. 3)

Installation of New Rotary Upper drum

①Clean the flange face and the bottom face of the new rotary upper drum (See Fig. 4).

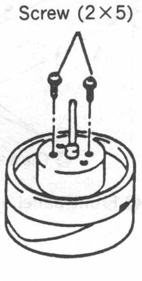
②Insert the shaft attached to the jig into the positioning hole in the lower drum. Then, put the shaft through the positioning hole in the new rotary upper drum and set the drum lightly.


Positioning Hole
Rotary Upper Drum Assembly (DGR-87-R)
Bottom Face
Shaft
Flange Face
Positioning Hole
Terminal
Terminal
Terminal
Terminal

(Fig. 4)

③With the shaft inserted into the positioning hole, push into the upper drum lightly with a hand. If the drum is not allowed to be bottomed, alternately tighten two screws (2×5) gradually and install the drum (See Fig. 5)

④Pull out the shaft inserted. If the shaft is not allowed to be withdrawn smoothly, go back to Step ② and redo the procedure.



(Fig. 5)

⑤Once the drum has been replaced, clean the video head and the run system with a head cleaner stick (See "Cleaning Method 2 for Video Head and Run System).

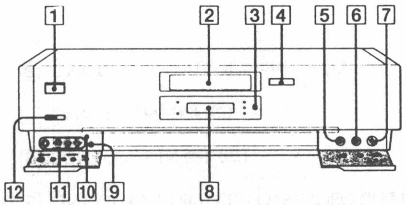
SECTION 1
GENERAL

This section is extracted from instruction manual.

Index to parts and controls

Refer to the pages indicated in ( ) for details.

Front panel



1 POWER switch/indicator

2 Tape compartment

3 Remote sensor (7)

4 ⏏ EJECT button

5 Microphone jack (70)

6 Headphone jack

7 MIN/MAX (headphone volume) control

8 Display window

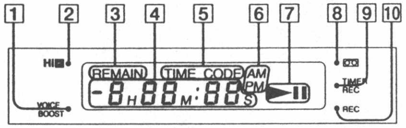
9 LANC Ͼ jack

10 CL (clear/reset) button

11 LINE IN 2 AUDIO/VIDEO/S-VIDEO jacks (60)

12 OPERATION PANEL OPEN/CLOSE switch (8)

Front panel display window



1 VOICE BOOST indicator (49)

2 **Hi8** indicator (5)

3 REMAIN indicator (35)

4 Linear time counter/Clock

5 TIME CODE indicator (66)

6 AM/PM indicator

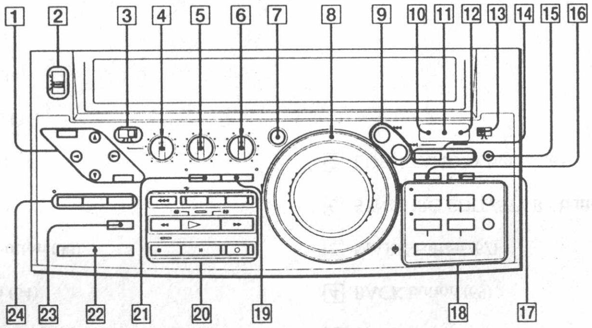
7 Tape operation indicator

8 Tape indicator

9 TIMER REC indicator

10 REC (recording) indicator (37)

Operation panel



1 MENU, CURSOR ▲/▼/◀/▶, and EXECUTE buttons (23)

2 COMMAND MODE VTR OFF/1/2/3 switch (8)

3 AUDIO MONITOR PCM/MIX/STD (Hi-Fi) switch (36)

4 STD AUDIO LEVEL control (71)

5 PCM REC BALANCE control (37)

6 PCM REC LEVEL control (37)

7 VISUAL SCAN button (56)

8 JOG dial/SHUTTLE ring (34)

9 ⏮/⏭ INDEX SEARCH buttons (55)

10 TBC indicator (33)

11 Hi-Fi STEREO indicator (36)

12 PCM indicator (36)

13 TAPE SELECT switch (35)

14 INDEX MARK/ERASE buttons (57)

15 TAPE SPEED (SP/LP) button(37)

16 COUNTER RESET button (35)

17 COUNTER SELECT button (35)

18 Tape editing buttons

19 TIME CODE WRITE button (66)

20 Tape operation buttons

21 AUDIO DUB button (70)

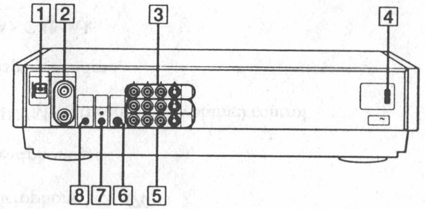
22 CHANNEL buttons (25)

23 TIMER CLEAR button (46)

24 DNR button (53)
TV/VTR button (39)
INPUT SELECT button (37)

Index to parts and controls
(continued)

Rear panel



1 RF UNIT switch (72)

2 VHF/UHF connectors (12)

3 LINE IN 1 AUDIO/VIDEO/S VIDEO jacks (60)

4 AC IN connector

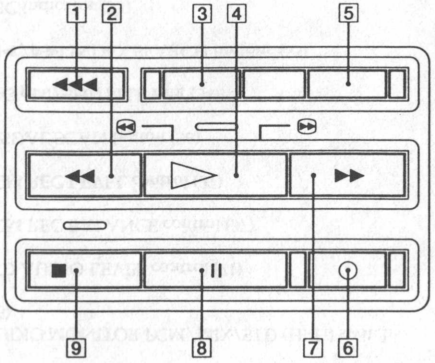
5 LINE OUT AUDIO/VIDEO/S VIDEO jacks (11)

6 CONTROL S IN jack (62)

7 LANC ⅽ connector (62)

8 CABLE BOX CONTROL connector (12)

Tape operation buttons



1 ◀◀◀ HI-SPEED REW button (34)

2 ◀◀ REW button (34)

3 TIMER REC ON/OFF button (38)

4 ▷ PLAY button (34)

5 QUICK TIMER button (38)

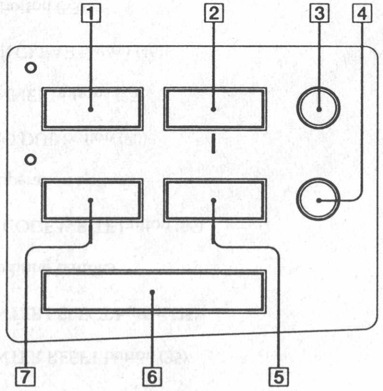
6 ● REC button (37)

7 ▶▶ FF button (34)

8 ▮▮ PAUSE button (34)

9 ■ STOP button (34)

Tape editing buttons



1 LANC REMOTE button (65)

2 ASSEMBLE button (67)

3 EDIT ON/OFF button (60)

4 BACK button (69)

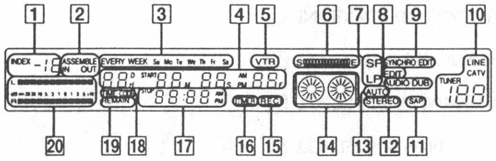
5 MARK button (67)

6 SYNCHRO EDIT/START button (65)

7 EDIT STANDBY button (65)

Index to parts and controls
(continued)

Operation panel display window


1
2
3
4
5
6
7
8
9
10
INDEX
ASSEMBLE IN OUT
EVERY WEEK Su Mo Tu We Th Fr Sa
START
STOP
AM
PM
VTR
SP
LP
EDIT
SYNCHRO EDIT
AUDIO DUB
AUTO
STEREO
SAP
TIMER
REC
REMAIN
TIME CODE
LINE
CATV
TUNER
20
19
18
17
16
15
14
13
12
11

1 INDEX SCAN and index number indicator (54)

2 ASSEMBLE IN/OUT indicator (67/68)

3 EVERY WEEK and weekday indicators (43)

4 Linear time counter/recording start time indicator (35)

5 VTR indicator (39)

6 Remaining tape length indicator (35)

7 SP/LP (tape speed) indicators (38)

8 EDIT indicator (60)

9 SYNCHRO EDIT indicator (65)

10 Channel number/input mode indicator

11 SAP indicator (39)

12 STEREO indicator (39)

13 AUTO indicator (49)

14 Cassette indicator

15 REC indicator (37)

16 TIMER indicator (38)

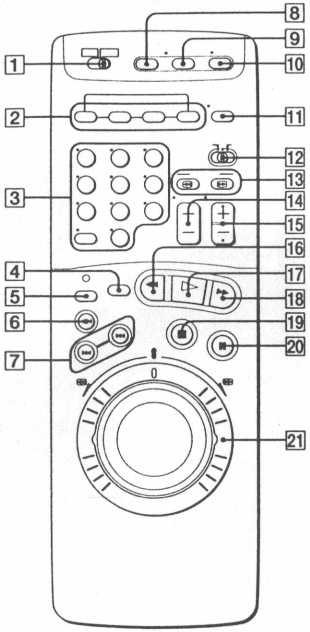
17 Quick timer recording time/current time/recording stop time (23)

18 TIME CODE indicator (66)

19 REMAIN indicator (35)

20 Peak level meter

Remote commander (front, with cover closed)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

1 TV/VTR remote control switch (7)

2 VCR Plus+ buttons (44)
   - VCR Plus+ button
   - ONCE button
   - DAILY button
   - WEEKLY button

3 Number buttons and ENTER button (25)

4 DIGITAL SCAN button (48)

5 JOG/SHUTTLE button (34)

6 ◄◄◄ HI-SPEED REW button (34)

7 |◄◄/►►| INDEX SEARCH buttons (55)

8 TIMER REC ON/OFF button (38)

9 TV/VTR button (39)

10 POWER button

11 DISPLAY button (35)

12 COMMAND MODE VTR 1/2/3 switch (8)

13 ⊖/⊕ SEARCH buttons (34)

14 VOL (volume) +/– button

15 CH (channel) +/– button (25)

16 ◄◄ REW button (34)

17 ▷ PLAY button (34)

18 ►► FF button (34)

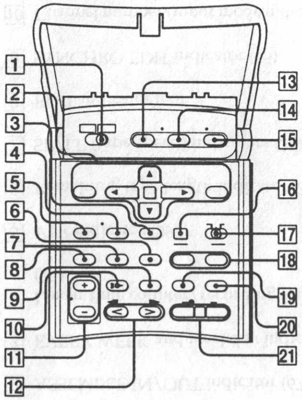
19 ■ STOP button (34)

20 ❚❚ PAUSE button (34)

21 JOG dial/SHUTTLE ring (34)

Index to parts and controls
(continued)

Remote commander (front, with cover opened)



1 TV/VTR remote control switch (7)

2 Menu buttons (23)
  MENU button
  ▲/▼/◀/▶ CURSOR buttons
  EXECUTE button

3 VOICE BOOST button (49)

4 DISPLAY button (35)

5 VISUAL SCAN button (56)

6 COUNTER SELECT button (35)

7 TAPE RETURN button (48)

8 COUNTER RESET button (35)

9 X2 (two-times speed) button (48)

10 ▮▶ SLOW button (48)

11 CH +/– buttons (25)

12 ◀II/II▶ FRAME </> buttons (48)

13 TIMER REC ON/OFF button (38)

14 TV/VTR button (39)

15 POWER button (8)

16 TIMER CLEAR button (46)

17 COMMAND MODE VTR 1/2/3 switch (8)

18 INDEX MARK/ERASE buttons (57)

19 TAPE SPEED button (38)

20 INPUT SELECT button (37)

21 ● REC buttons (37)

Welcome!

Thank you for purchasing the Sony Video Cassette Recorder Hi8 (VCR). Here are some of the features you'll enjoy with your VCR:

- TIME CODE function for more precise, higher-quality editing
- Advanced editing function that lets you preset 8 events to be edited
- Flying erase head for smooth transfer between inserted portions
- PCM audio recording system feature that allows you to take advantage of the latest technology in high-grade audio systems
- JOG dial and SHUTTLE ring for easy search operations
- LANC ◐ jack to connect peripheral equipment such as another VCR which can then be controlled by this VCR
- VCR Plus+ system that lets you quickly and easily preset the VCR to record programs
- Cable box control that allows your VCR to control channel selection on most brands of cable boxes
- Remote commander that features multi-brand TV control

---

* VCR Plus+ and PlusCode are trademarks of Gemstar Development Corporation. The VCR Plus+ system is manufactured under license from Gemstar Development Corporation.

Hi8 (high eight) video system

Both **Hi8** and standard 8 cassette tapes can be used with this VCR. Refer to the charts below for the compatibility between the **Hi8** video system and the standard 8 system.

When playing a tape

This VCR automatically detects the type of tape being played, either **Hi8** or standard 8. This VCR also automatically detects the tape speed (either SP or LP) the tape was recorded in.

Tape type	Recording format	Playback mode
Hi8 tape	**Hi8** (high eight)	**Hi8** (high eight)
	8 (standard 8mm)	8 (standard 8mm)
Standard 8 tape	8 (standard 8mm)	8 (standard 8mm)

When recording on a tape

You can set this VCR to record in either **Hi8** or standard 8 format. See "Using the SET UP menu" on page **32**.

Tape type	Recording format	SET UP MENU setting
Hi8 tape	**Hi8** (high eight)	AUTO
	8 (standard 8mm)	OFF
Standard 8 tape	8 (standard 8mm)	AUTO or OFF

Saving a recording

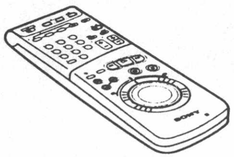
Slide out the tab on the cassette so that the red color appears.
To re-record on the cassette, slide the tab back.

Notes
- **Hi8** recording or playback can only be done using a **Hi8** tape.
- You cannot make **Hi8** format recordings on standard 8 tapes.

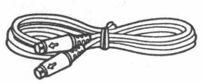
Step 1: Unpacking

Check that you have the following items:

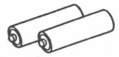
- **Remote commander**



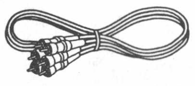
- **S-video cable**



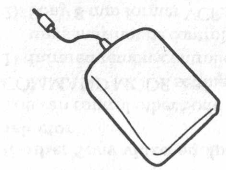
- **Size AA (R6) batteries**



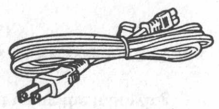
- **Audio/video cable (3-phono to 3-phono)**



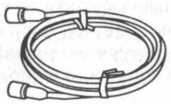
- **Cable mouse (cable box controller)**



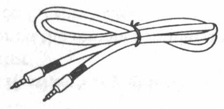
- **AC power cord**



- **75-ohm coaxial cable with F-type connectors**



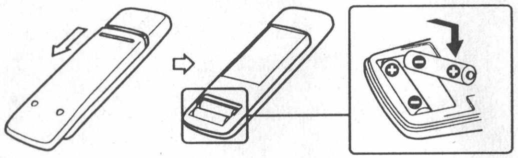
- **LANC cable**



Step 2: Setting up the remote commander

Inserting the batteries

Insert two size AA (R6) batteries by matching the + and – on the batteries to the diagram inside the battery compartment.

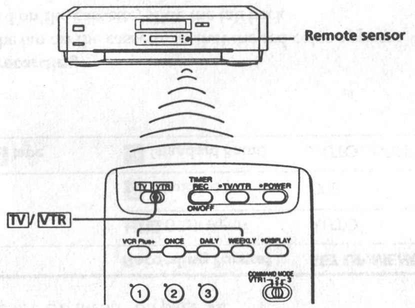


Notes

- With normal use, the batteries should last for approximately three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one.
- Do not use different types of batteries.

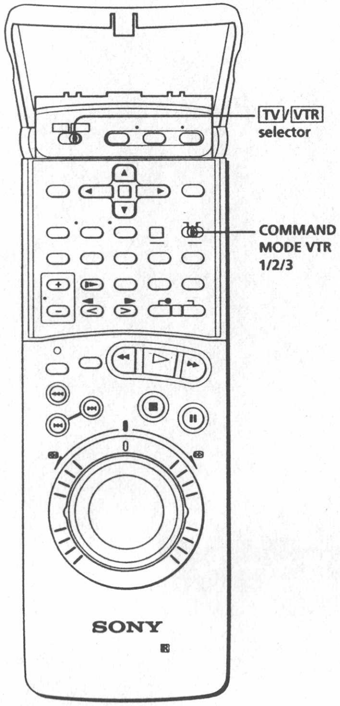
Using the remote commander

You can use this remote commander to operate this VCR and a Sony TV. Buttons on the remote commander marked with a dot (•) can be used to operate your TV.



To operate	Set TV / VTR to
the VCR	VTR and point at the remote sensor on the VCR
a Sony TV	TV and point at the remote sensor on the TV

Step 2 Setting up the remote commander (continued)



Note

- If you set the COMMAND MODE VTR OFF/1/2/3 selector on the VCR to "OFF," you can no longer control this VCR from any other Sony remote commanders.

Setting the command mode

You can select three different positions for the command mode setting.

1 **Turn on the VCR, then press OPERATION PANEL OPEN/CLOSE to open the operation panel.**
Set the COMMAND MODE VTR OFF/1/2/3 selector on the VCR to "VTR 2."

2 **Set the COMMAND MODE VTR 1/2/3 selector on the remote commander to "VTR 2."**

3 **Set the TV/VTR remote control selector on the remote commander to "VTR."**

Controlling other Sony video equipment if other Sony video equipment has a COMMAND MODE selector

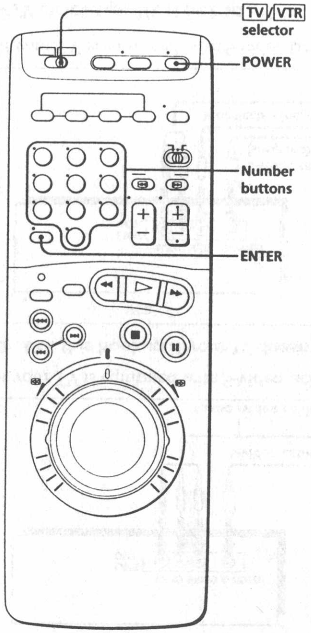
1 Set the COMMAND MODE 1/2/3 selector on the remote commander to a position other than the one you selected for this VCR.
2 Set the COMMAND MODE selector of any other video equipment to the same position you selected in step **1**.

If other Sony video equipment does not have a COMMAND MODE selector

You can control other Sony video equipment using the following COMMAND MODE settings.

1) Infrared remote controlled Sony Betamax VCRs: position 1 (Some units may not be controlled in this mode.)
2) Sony 8 mm format VCRs: position 2
3) Sony VHS format VCRs: position 3

Notes
- If the TV uses a different remote control system from the one programmed to work with the VCR, you cannot control your TV with the remote commander.
- If you enter a new code number, the code number previously entered will be erased.
- When you replace the batteries in the remote commander, the code number automatically resets to 1 (Sony). Reset the appropriate code number.



Controlling other TVs with the remote commander

The remote commander is preprogrammed to control non-Sony TVs. If your TV is listed in the table below, set the appropriate manufacturer's code number.

1 Set TV/VTR on the top of the remote commander to TV.

2 Press and hold down POWER, and then enter your TV's code number(s) using the number buttons. Press the ENTER button. Then release POWER.
Code numbers are listed below.
Now you can use the buttons marked with a dot (•) to control your TV. To control the VCR, reset TV/VTR to VTR.

Code numbers of controllable TVs

If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

Manufacturer	Code number	Manufacturer	Code number
Sony	*1*	Philco	*3, 4*
Akai	*4*	Philips	*8*
AOC	*4*	Pioneer	*16*
Centurion	*12*	Portland	*3*
Coronado	*3*	Quasar	*6*
Curtis-Mathes	*12*	Radio Shack	*5, 14*
Daytron	*12*	RCA	*4, 10*
Fisher	*11*	Sampo	*12*
General Electric	*6, 10*	Sanyo	*11*
Hitachi	*2, 3*	Scott	*12*
J. C. Penney	*4, 12*	Sears	*7, 10, 11*
JVC	*9*	Sharp	*3, 5, 18*
KMC	*3*	Sylvania	*8, 12*
Magnavox	*3, 8, 12*	Teknika	*3, 8, 14*
Marantz	*4, 13*	Toshiba	*7*
MGA/Mitsubishi	*4, 12, 13, 17*	Wards	*3, 4, 12*
NEC	*4, 12*	Yorx	*12*
Panasonic	*6*	Zenith	*15*

Step 3: Hookups

Caution
Connections between the VCR's VHF/UHF connector and the antenna terminals of the TV receiver should be made only as shown in the following instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of RF devices. Never connect the output of the VCR to an antenna or make simultaneous (parallel) antenna and VCR connections at the antenna terminals of your receiver.

Note to CATV system installer
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Selecting the best hookup option

Before you can use your VCR for the first time, you need to connect it to your TV and set it up to receive programs for viewing and recording. This section explains how to hook up and set up your VCR so that you can start enjoying it right away. There are, however, many types of TVs available and many ways in which your TV can be hooked up. For these reasons, this manual describes several ways your VCR can be connected.

To hook up your VCR so that it works best for you, first scan through the table below. Then use the accompanying diagrams and procedures on the following pages to set up your VCR.

If you have	Use	Refer to
TV that has audio/video inputs	Audio/video (A/V) hookup, then follow one of the hookups below.	Page 11
Cable TV with cable box	Hookup 1	Page 12
Cable TV without cable box	Hookup 2	Page 14
Antenna only, no cable TV	Hookup 3	Page 16

After you've completed the connections, follow the instructions for setup including VCR Plus+ setup. During setup, if you need more details of the procedure described, page numbers are provided where you can find complete, step-by-step instructions.

After you've completed the setup, you're ready to use your VCR. Procedures differ depending on the hookup you used. For an overview, refer to "Quick reference to using the VCR" on the back cover.

Before you get started

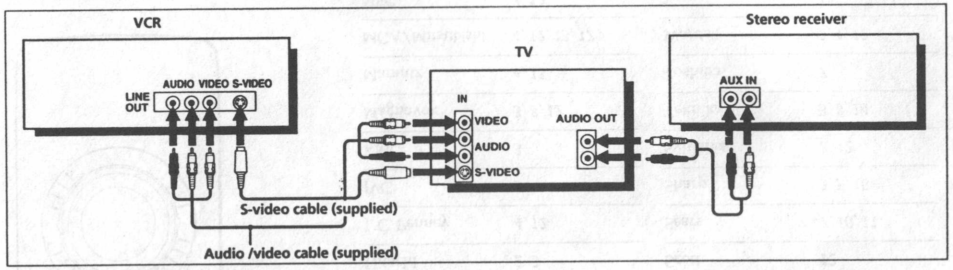
- Turn off the power to all equipment.
- Do not connect the AC power cords until all of the connections are completed.
- Be sure you make connections firmly. Loose connections may cause picture distortion.
- If your TV doesn't match any of the examples provided, see your nearest Sony dealer or qualified technician.

Audio/video (A/V) hookup

If your TV has audio/video (A/V) input jacks, you will get a better picture and sound if you hook up your VCR using these connections. In addition, for a true "home theater" experience, you should connect the audio outputs of your VCR or TV to your stereo system. If your TV doesn't have A/V inputs, see the following pages for antenna or cable hookups.

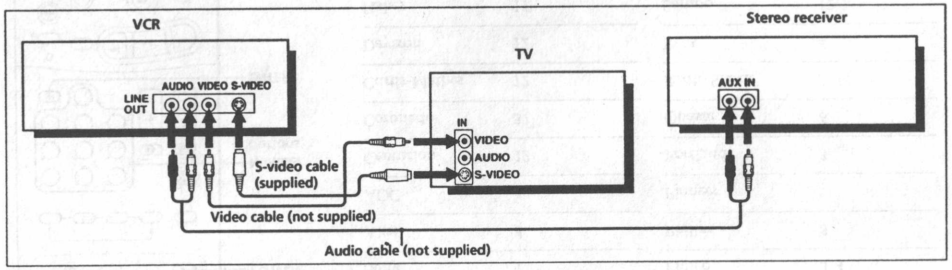
If you're planning to use your VCR only to play back pictures and movies, you're finished setting up the VCR after you've made these connections. If you want to record off-air or off your cable TV system, complete these connections first, and then go to the following pages for antenna or cable hookups.

A Use this hookup if your TV has stereo jacks


VCR
LINE OUT
AUDIO VIDEO S-VIDEO
TV
IN
VIDEO
AUDIO
S-VIDEO
AUDIO OUT
Stereo receiver
AUX IN
S-video cable (supplied)
Audio /video cable (supplied)

If your TV is equipped with S-video jacks, then use the S-video connection.

B Use this hookup if your TV doesn't have stereo jacks

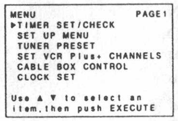

VCR
LINE OUT
AUDIO VIDEO S-VIDEO
TV
IN
VIDEO
AUDIO
S-VIDEO
Stereo receiver
AUX IN
S-video cable (supplied)
Video cable (not supplied)
Audio cable (not supplied)

If your TV is equipped with S-video jacks, then use the S-video connection.

A/V hookup: VCR setup

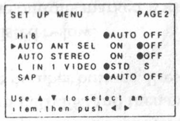
After you've connected your TV and completed antenna or cable hookup, use the following procedure to set up the VCR.

Press MENU and select SET UP MENU.



```
MENU                      PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

Set AUTO ANT SEL to OFF and press EXECUTE.



```
SET UP MENU               PAGE2

 Hi8            ●AUTO OFF
▶AUTO ANT SEL    ON  ●OFF
 AUTO STEREO     ON  ●OFF
 L IN 1 VIDEO   ●STD  S
 SAP            ●AUTO OFF

Use ▲ ▼ to select an
item, then push ◀ ▶
```

For details, see page 32.

Hookup 1

Using cable box control

Recommended use

This hookup is recommended for most cable systems with cable boxes. It allows the VCR's cable box control feature to control the channel on the cable box, simplifying the recording process. You should use this hookup if you have a cable box, especially if your cable system scrambles all or most channels. A list of compatible cable boxes is on page **28**.

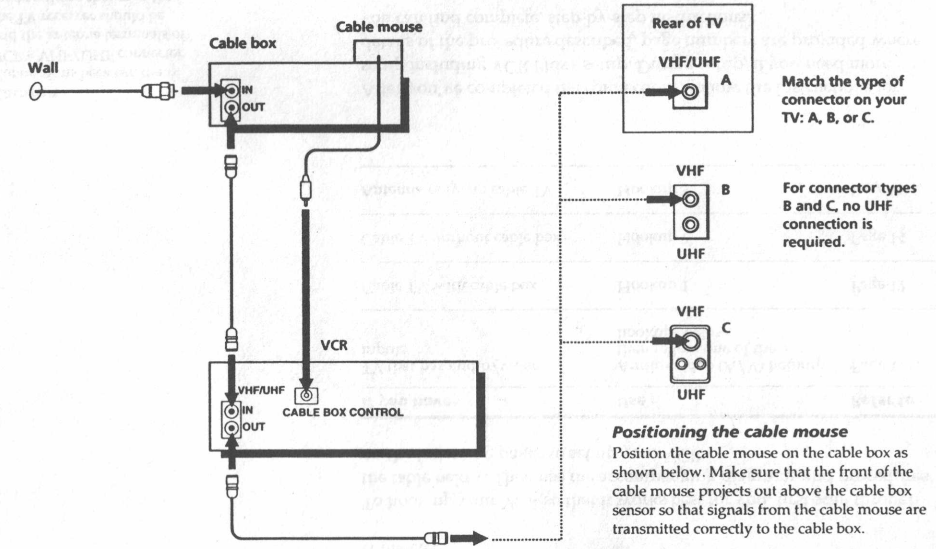
What you can and can't do with this hookup

What you can do

- Record any channel by using the VCR's cable box control feature to select channels on the cable box

What you can't do

- Record with the cable box turned off
- Record one channel while watching another channel

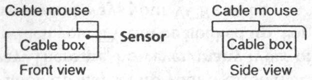

Wall
Cable box
IN
OUT
Cable mouse
VCR
VHF/UHF
IN
OUT
CABLE BOX CONTROL
Rear of TV
VHF/UHF
A
VHF
B
UHF
VHF
C
UHF

Match the type of connector on your TV: A, B, or C.

For connector types B and C, no UHF connection is required.

Positioning the cable mouse

Position the cable mouse on the cable box as shown below. Make sure that the front of the cable mouse projects out above the cable box sensor so that signals from the cable mouse are transmitted correctly to the cable box.

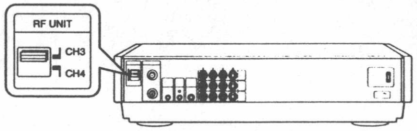

Cable mouse
Cable box
Sensor
Cable mouse
Cable box

Front view

Side view

Hookup 1: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.
If you made A/V connections (from page **11**), you can skip this step.

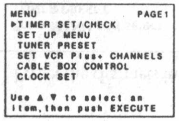


For details, see page 72.

2 Turn on your cable box.

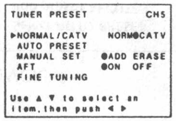
3 Set NORMAL/CATV to CATV:

Press MENU and select TUNER PRESET.



```
MENU                PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

Set NORMAL/CATV to CATV and press EXECUTE.

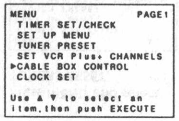


```
TUNER PRESET          CH5

▶NORMAL/CATV    NORM●CATV
 AUTO PRESET
 MANUAL SET     ●ADD ERASE
 AFT            ●ON  OFF
 FINE TUNING

Use ▲ ▼ to select an
item, then push ◀ ▶
```

For details, see page 24.

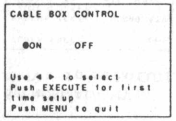
4 Set CABLE BOX CONTROL to ON:

Press MENU and select CABLE BOX CONTROL.



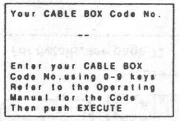
```
MENU                PAGE1
 TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
▶CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

Select ON and press EXECUTE.



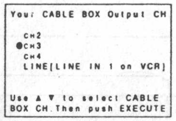
```
CABLE BOX CONTROL


  ●ON      OFF


Use ◀ ▶ to select
Push EXECUTE for first
time setup
Push MENU to quit
```

Enter your cable code number and press EXECUTE.



```
Your CABLE BOX Code No.

          --

Enter your CABLE BOX
Code No.using 0-9 keys
Refer to the Operating
Manual for the Code
Then push EXECUTE
```

Select your cable box output channel and press EXECUTE.



```
Your CABLE BOX Output CH

  CH2
 ●CH3
  CH4
  LINE[LINE IN 1 on VCR]

Use ▲ ▼ to select CABLE
BOX CH.Then push EXECUTE
```

For details, see page 27.

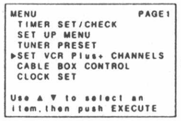
If your cable box is not compatible
Check with your cable company to see if they can provide a compatible box. If not, use Hookup 2 (or 5, if you have only a few scrambled channels) or Hookup 4 (if you have many scrambled channels).

Hookup 1: VCR Plus+ channel setup

1 Find the VCR Plus+ Channel Listing in your program guide. For details on the VCR Plus+ Channel Listing, see page **30**.

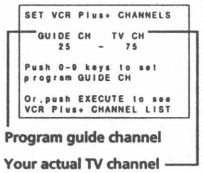
2 If the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows:

Press MENU and select SET VCR Plus+ CHANNELS.



```
MENU                PAGE1
 TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
▶SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

Enter the program guide channel, then the channel you use on your TV.



```
SET VCR Plus+ CHANNELS

  GUIDE CH    TV CH
    25    -    75

Push 0-9 keys to set
program GUIDE CH

Or,push EXECUTE to see
VCR Plus+ CHANNEL LIST
```

Program guide channel

Your actual TV channel

Press EXECUTE.

For details, see page 31.

You are now ready to use your VCR

A Quick reference to operations is provided on the back cover to help you quickly enjoy the basic functions. These procedures differ slightly depending on the hookup used. Make a note of which hookup you used (Hookup 1) so that you can always follow the correct instructions.

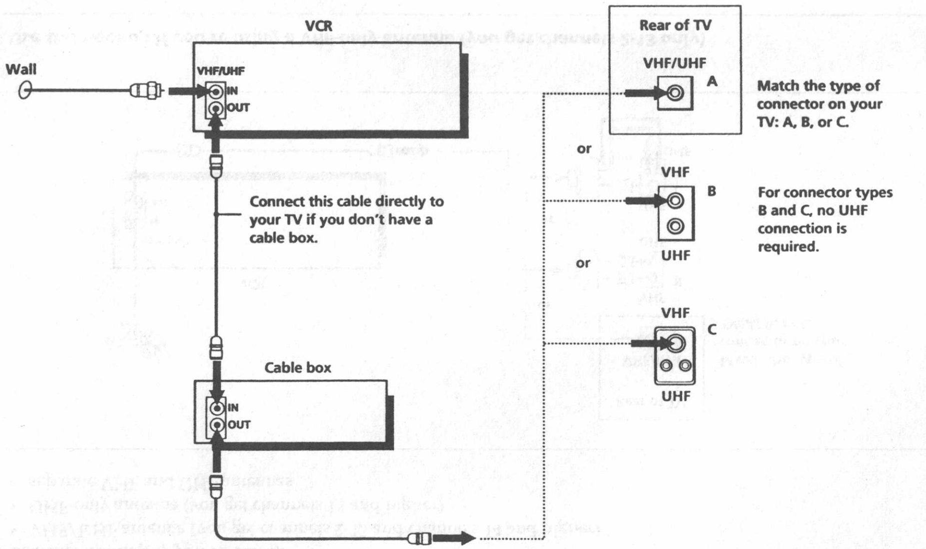
Hookup 2

No cable box
or
Incompatible cable box and few scrambled channels

Recommended use
Use this hookup if you do not have a cable box. Also use this hookup if your cable company cannot supply a cable box that is compatible with the VCR's cable box control feature, and your cable system scrambles only a few channels.

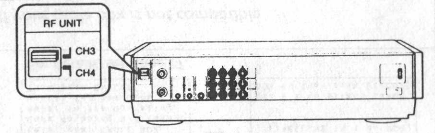
What you can and can't do with this hookup
What you can do
- Record any unscrambled channel

What you can't do
- Record scrambled channels that require a cable box


VCR
Wall
VHF/UHF
IN
OUT
Connect this cable directly to your TV if you don't have a cable box.
Cable box
IN
OUT
Rear of TV
VHF/UHF
A
or
VHF
B
UHF
or
VHF
C
UHF
Match the type of connector on your TV: A, B, or C.
For connector types B and C, no UHF connection is required.

Hookup 2: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.
If you made A/V connections (from page **11**), you can skip this step.

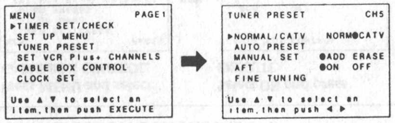


For details, see page 72.

2 Set NORMAL/CATV to CATV:

Press MENU and select TUNER PRESET.

Set NORMAL/CATV to CATV and press EXECUTE.



```
MENU                PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

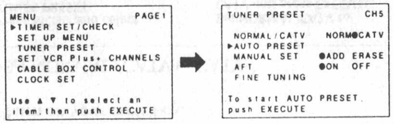
```
TUNER PRESET              CH5

▶NORMAL/CATV     NORM●CATV
 AUTO PRESET
 MANUAL SET      ●ADD ERASE
 AFT             ●ON  OFF
 FINE TUNING

Use ▲ ▼ to select an
item, then push ◀ ▶
```

For details, see page 24.

3 Preset the channels into the VCR:

Press MENU and select TUNER PRESET.

Select AUTO PRESET and press EXECUTE.



```
MENU                PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

```
TUNER PRESET              CH5

 NORMAL/CATV     NORM●CATV
▶AUTO PRESET
 MANUAL SET      ●ADD ERASE
 AFT             ●ON  OFF
 FINE TUNING

To start AUTO PRESET,
push EXECUTE
```

For details, see page 24.

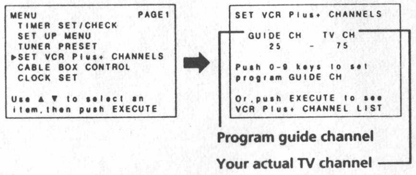
Hookup 2: VCR Plus+ channel setup

1 Find the VCR Plus+ Channel Listing in your program guide. For details on the VCR Plus+ Channel Listing, see page **30**.

2 If the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows:

Press MENU and select SET VCR Plus+ CHANNELS.

Enter the program guide channel, then the channel you use on your TV.



```
MENU                PAGE1
 TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
▶SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

```
SET VCR Plus+ CHANNELS

  GUIDE CH    TV CH
     25    -    75

Push 0-9 keys to set
program GUIDE CH

Or, push EXECUTE to see
VCR Plus+ CHANNEL LIST
```

For details, see page 31.

Press EXECUTE.

You are now ready to use your VCR

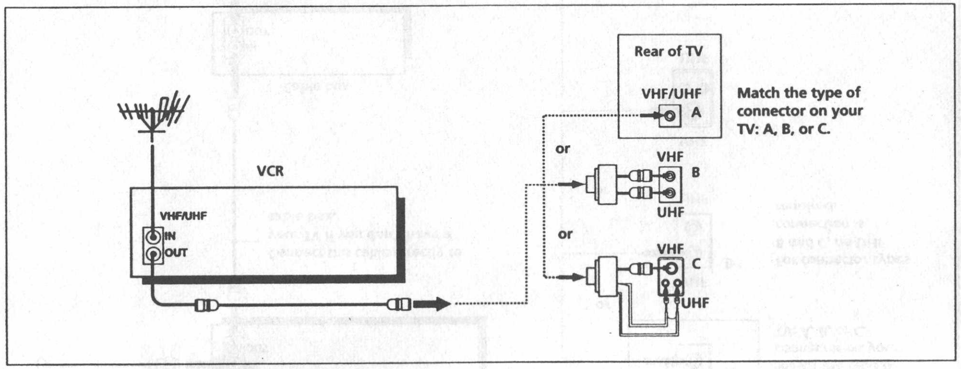
A **Quick reference** to operations is provided on the back cover to help you quickly enjoy the basic functions. These procedures differ slightly depending on the hookup used. Make a note of which hookup you used (Hookup 2) so that you can always follow the correct instructions.

Hookup 3

Make the following connections if you're using an antenna (if you don't have cable TV).

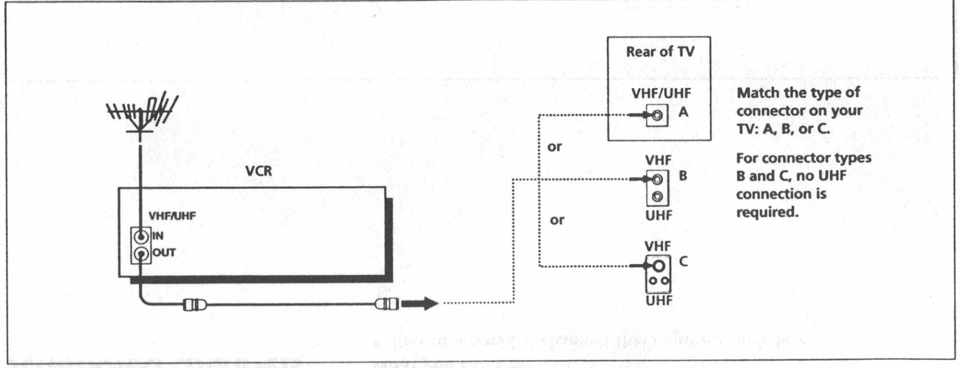
Antenna hookup

A Use this hookup if you're using:
- VHF/UHF antenna (you get channels 2-13 and channels 14 and higher)
- UHF-only antenna (you get channels 14 and higher)
- separate VHF and UHF antennas



Match the type of connector on your TV: A, B, or C.

B Use this hookup if you're using a VHF-only antenna (you get channels 2-13 only)



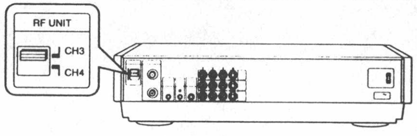
Match the type of connector on your TV: A, B, or C.

For connector types B and C, no UHF connection is required.

If you cannot connect your antenna cable to the VCR directly
If your antenna cable is a flat cable (300-ohm twin lead cable), attach the external antenna connector (not supplied) so that you can connect the cable to the VHF/UHF IN jack. If you have separate cables for VHF and UHF antennas, you may use a U/V band mixer (not supplied). For details, see page **72**.

Hookup 3: VCR setup

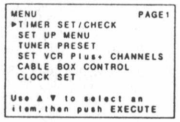
1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.
If you made A/V connections (from page **11**), you can skip this step.



For details, see page 72.

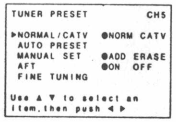
2 Set NORMAL/CATV to NORM:

Press MENU and select TUNER PRESET.



```
MENU                    PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

Set NORMAL/CATV to NORM and press EXECUTE.

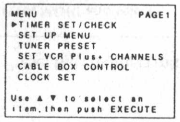


```
TUNER PRESET              CH5

▶NORMAL/CATV    ●NORM CATV
 AUTO PRESET
 MANUAL SET     ●ADD ERASE
 AFT            ●ON  OFF
 FINE TUNING

Use ▲ ▼ to select an
item,then push ◀ ▶
```

For details, see page 24.

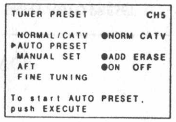
3 Preset the channels into the VCR:

Press MENU and select TUNER PRESET.



```
MENU                    PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

Select AUTO PRESET and press EXECUTE.



```
TUNER PRESET              CH5

 NORMAL/CATV    ●NORM CATV
▶AUTO PRESET
 MANUAL SET     ●ADD ERASE
 AFT            ●ON  OFF
 FINE TUNING

To start AUTO PRESET,
push EXECUTE
```

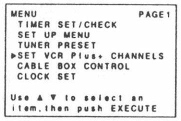
For details, see page 24.

Hookup 3: VCR Plus+ channel setup

1 Find the VCR Plus+ Channel Listing in your program guide. For details on the VCR Plus+ Channel Listing, see page **30**.

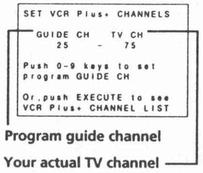
2 If the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows:

Press MENU and select SET VCR Plus+ CHANNELS.



```
MENU                    PAGE1
 TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
▶SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

Enter the program guide channel, then the channel you use on your TV.



```
SET VCR Plus+ CHANNELS

  GUIDE CH    TV CH
     25    -    75

Push 0-9 keys to set
program GUIDE CH

Or,push EXECUTE to see
VCR Plus+ CHANNEL LIST
```

For details, see page 31.

Press EXECUTE.

You are now ready to use your VCR

A Quick reference to operations is provided on the back cover to help you quickly enjoy the basic functions. These procedures differ slightly depending on the hookup used. Make a note of which hookup you used (Hookup 3) so that you can always follow the correct instructions.

Hookup 4

Incompatible cable box and many scrambled channels

Recommended use

Use this hookup if your cable company cannot supply a cable box that is compatible with the VCR's cable box control feature, and your cable system scrambles all, or most channels.

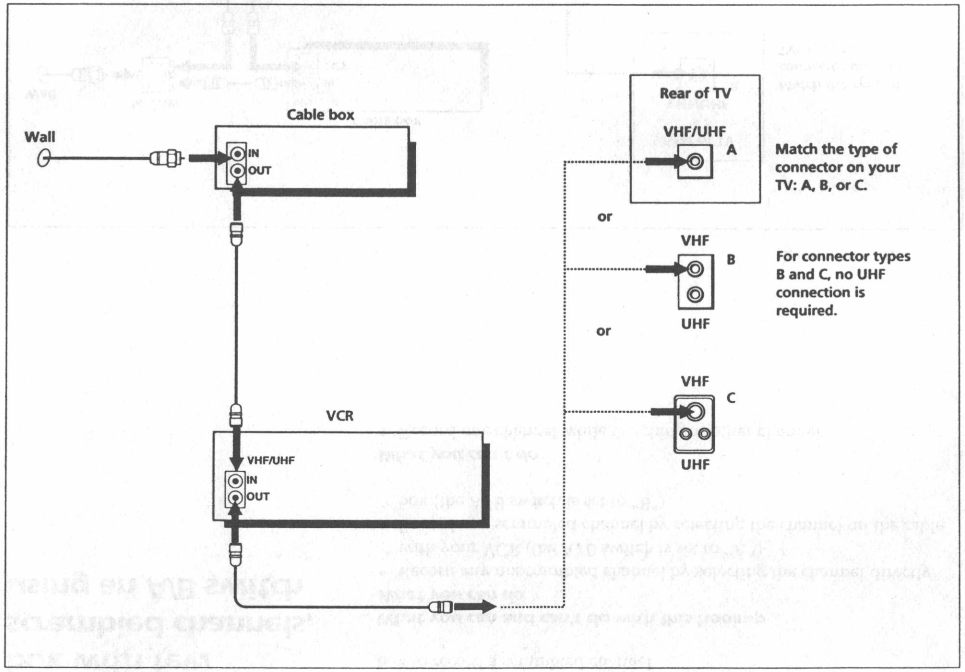
What you can and can't do with this hookup

What you can do

- Record any channel by selecting the channel on the cable box

What you can't do

- Record with the cable box turned off
- Record by selecting channels directly with the VCR
- Record one channel while watching another channel

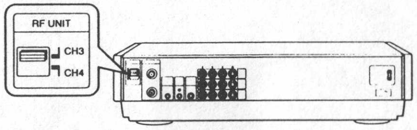


Match the type of connector on your TV: A, B, or C.

For connector types B and C, no UHF connection is required.

Hookup 4: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.
If you made A/V connections (from page **11**), you can skip this step.



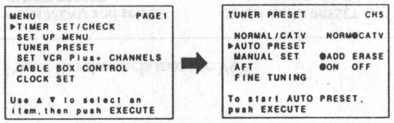
For details, see page 72.

2 Turn on your cable box.

3 Preset the channels into the VCR:

Press MENU and select TUNER PRESET.

Select AUTO PRESET and press EXECUTE.



```
MENU                        PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

```
TUNER PRESET                  CH5

 NORMAL/CATV       NORM●CATV
▶AUTO PRESET
 MANUAL SET        ●ADD  ERASE
 AFT               ●ON   OFF
 FINE TUNING

To start AUTO PRESET,
push EXECUTE
```

For details, see page 24.

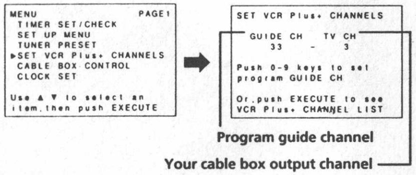
Hookup 4: VCR Plus+ channel setup

1 Find the VCR Plus+ Channel Listing in your program guide. For details on the VCR Plus+ Channel Listing, see page **30**.

2 Enter all the channels you want to record and the cable box output channel (usually 2, 3, or 4):

Press MENU and select SET VCR Plus+ CHANNELS.

Enter the program guide channel, then the cable box output channel.



```
MENU                        PAGE1
 TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
▶SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

```
SET VCR Plus+ CHANNELS

   GUIDE CH     TV CH
      33    -     3

Push 0-9 keys to set
program GUIDE CH

Or, push EXECUTE to see
VCR Plus+ CHANNEL LIST
```

Program guide channel

Your cable box output channel

Press EXECUTE.

For details, see page 31.

You are now ready to use your VCR

A Quick reference to operations is provided on the back cover to help you quickly enjoy the basic functions. These procedures differ slightly depending on the hookup used. Make a note of which hookup you used (Hookup 4) so that you can always follow the correct instructions.

Hookup 5

Incompatible cable box with few scrambled channels, using an A/B switch

Recommended use

By using an A/B switch, this hookup allows you to easily record both scrambled and unscrambled channels. With the A/B switch set to position "A," you can record unscrambled channels by selecting channels directly with the VCR. You only use position "B" and the cable box to record a scrambled channel.

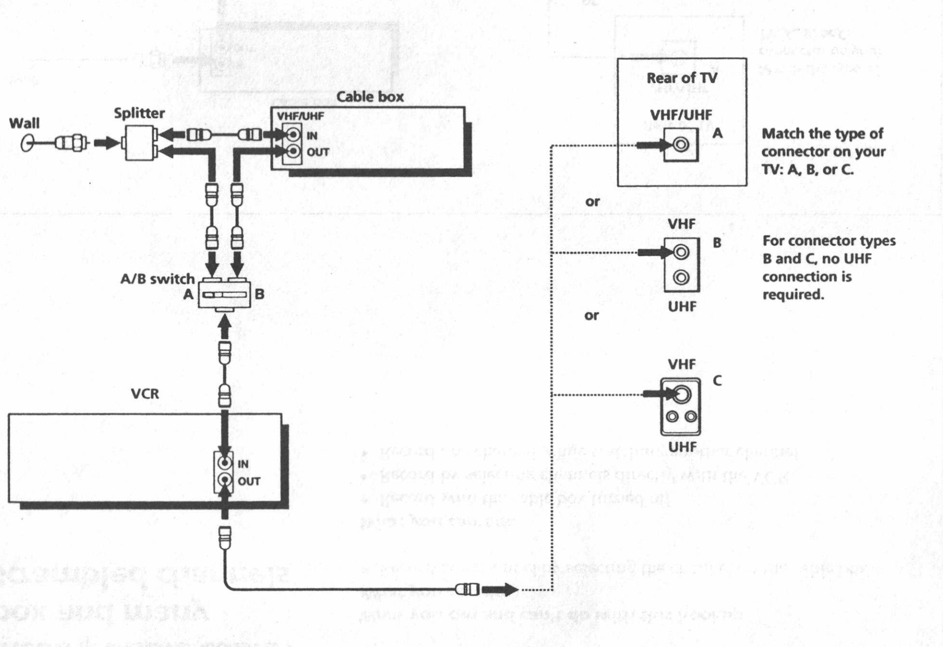
What you can and can't do with this hookup

What you can do

- Record any unscrambled channel by selecting the channel directly with your VCR (the A/B switch is set to "A")
- Record any scrambled channel by selecting the channel on the cable box (the A/B switch is set to "B")

What you can't do

- Record one channel while watching another channel

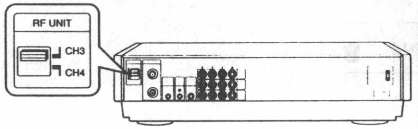


Match the type of connector on your TV: A, B, or C.

For connector types B and C, no UHF connection is required.

Hookup 5: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.
If you made A/V connections (from page **11**), you can skip this step.

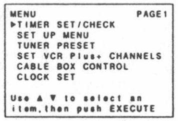


For details, see page 72.

2 Set the A/B switch to "A."

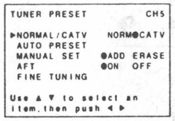
3 Set NORMAL/CATV to CATV:

Press MENU and select TUNER PRESET.



```
MENU                    PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

Set NORMAL/CATV to CATV and press EXECUTE.

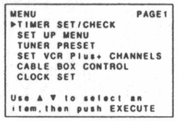


```
TUNER PRESET            CH5

▶NORMAL/CATV    NORM●CATV
 AUTO PRESET
 MANUAL SET     ●ADD ERASE
 AFT            ●ON  OFF
 FINE TUNING

Use ▲ ▼ to select an
item,then push ◀ ▶
```

For details, see page 24.

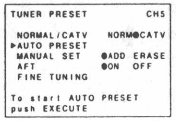
4 Preset the channels into the VCR:

Press MENU and select TUNER PRESET.



```
MENU                    PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

Select AUTO PRESET and press EXECUTE.

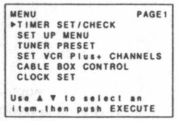


```
TUNER PRESET            CH5

 NORMAL/CATV    NORM●CATV
▶AUTO PRESET
 MANUAL SET     ●ADD ERASE
 AFT            ●ON  OFF
 FINE TUNING

To start AUTO PRESET
push EXECUTE
```

For details, see page 24.

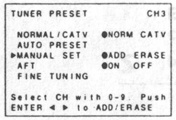
5 Preset the cable box output channel (usually 2, 3, or 4):

Press MENU and select TUNER PRESET.



```
MENU                    PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

Set MANUAL SET to ADD and press EXECUTE.



```
TUNER PRESET            CH3

 NORMAL/CATV    ●NORM CATV
 AUTO PRESET
▶MANUAL SET     ●ADD ERASE
 AFT            ●ON  OFF
 FINE TUNING

Select CH with 0-9. Push
ENTER ◀ ▶ to ADD/ERASE
```

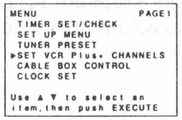
For details, see page 27.

Hookup 5: VCR Plus+ channel setup

1 Find the VCR Plus+ Channel Listing in your program guide. For details on the VCR Plus+ Channel Listing, see page **30**.

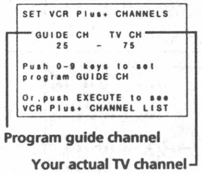
2 For unscrambled channels, if the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows:

Press MENU and select SET VCR Plus+ CHANNELS.



```
MENU                    PAGE1
 TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
▶SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

Enter the program guide channel, then the channel you use on your TV.



```
SET VCR Plus+ CHANNELS

   GUIDE CH    TV CH
     25     -   75

Push 0-9 keys to set
program GUIDE CH

Or,push EXECUTE to see
VCR Plus+ CHANNEL LIST
```

Program guide channel

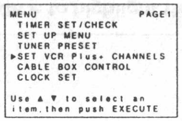
Your actual TV channel

Press EXECUTE.

For details, see page 31.

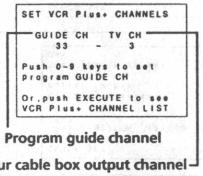
3 For scrambled channels, enter all the scrambled channels you want to record and the cable box output channel (usually 2, 3, or 4):

Press MENU and select SET VCR Plus+ CHANNELS.



```
MENU                    PAGE1
 TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
▶SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

Enter the program guide channel, then the cable box output channel.



```
SET VCR Plus+ CHANNELS

   GUIDE CH    TV CH
     33     -    3

Push 0-9 keys to set
program GUIDE CH

Or,push EXECUTE to see
VCR Plus+ CHANNEL LIST
```

Program guide channel

Your cable box output channel

Press EXECUTE.

For details, see page 31.

Hookup 5

Incompatible cable box with few scrambled channels, using an A/B switch (continued)

You are now ready to use your VCR

To play a tape
1 Set the TV to channel 3 or 4 (or to video input, if you have made A/V connections).
2 Insert a cassette and press ⊳ PLAY.

To record an unscrambled channel
1 Set the A/B switch to "A."
2 Press VCR Plus+ on the remote commander.
3 Enter the program's PlusCode number.
4 Press ONCE, DAILY, or WEEKLY.
5 Insert a cassette.
6 Press TIMER REC ON/OFF.

To record a scrambled channel
1 Set the A/B switch to "B."
2 Turn on the cable box.
3 Set the cable box to the channel you want to record.
4 Press VCR Plus+ on the remote commander.
5 Enter the program's PlusCode number.
6 Press ONCE, DAILY, or WEEKLY.
7 Insert a cassette.
8 Press TIMER REC ON/OFF.
9 Leave the cable box on.

To watch TV
1 Turn off your VCR, or press the VCR's TV/VTR button until the VTR indicator in the display window goes off.
2 Set the A/B switch to "B."
3 Turn on your cable box.
4 Set the TV to the cable box output channel (usually 2, 3, or 4).
5 Set the cable box to the channel you want to watch.

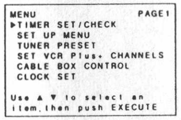
Setting the clock

Set the time and date to use the timer feature for recording programs.

Note

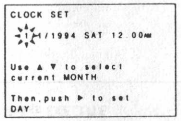
- If you don't set the clock, the tape indicator does not appear in the display window.

1 **Press MENU.**
The main MENU appears on the TV screen.



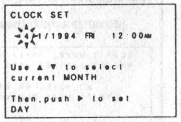
```
MENU                    PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

2 **Press CURSOR ▲/▼ to move the cursor (▶) to CLOCK SET, then press EXECUTE.**
The CLOCK SET menu appears on the TV screen and the month is highlighted.



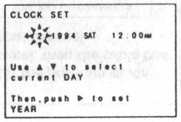
```
CLOCK SET
 1/1/1994 SAT 12.00AM

Use ▲ ▼ to select
current MONTH

Then,push ▶ to set
DAY
```

3 **Set the month using CURSOR ▲/▼.**



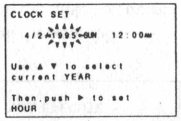
```
CLOCK SET
 4/1/1994 FRI 12:00AM

Use ▲ ▼ to select
current MONTH

Then,push ▶ to set
DAY
```

4 **Press CURSOR ▶ to highlight the day. Set the day using CURSOR ▲/▼.**
The day of the week is set automatically.



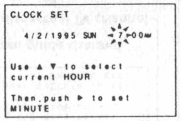
```
CLOCK SET
   4/2/1994 SAT 12:00AM

Use ▲ ▼ to select
current DAY

Then,push ▶ to set
YEAR
```

5 **Press CURSOR ▶ to highlight the year. Set the year using CURSOR ▲/▼.**



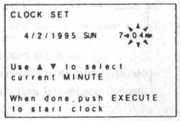
```
CLOCK SET
   4/2/1995 SUN 12:00AM

Use ▲ ▼ to select
current YEAR

Then,push ▶ to set
HOUR
```

6 **Press CURSOR ▶ to highlight the hour. Set the hour using CURSOR ▲/▼.**



```
CLOCK SET
   4/2/1995 SUN  7:00AM

Use ▲ ▼ to select
current HOUR

Then,push ▶ to set
MINUTE
```

7 **Press CURSOR ▶ to highlight the minutes. Set the minutes using CURSOR ▲/▼.**

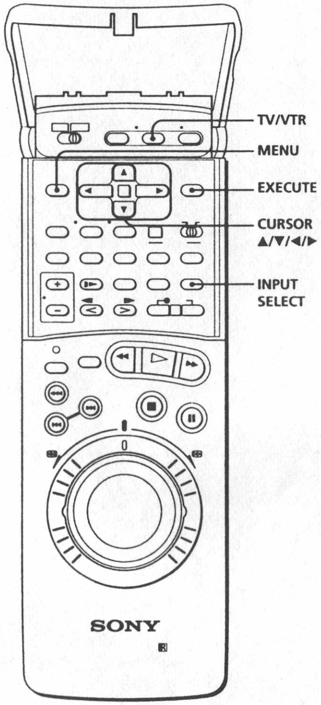


```
CLOCK SET
   4/2/1995 SUN   7:04AM

Use ▲ ▼ to select
current MINUTE

When done,push EXECUTE
to start clock
```

8 **Press EXECUTE to start the clock.**

Presetting channels

(Skip this section if you are using cable box control.)



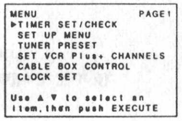
This VCR is capable of receiving VHF channels 2 to 13, UHF channels 14 to 69 and unscrambled CATV channels 1 to 125. First, we recommend that you preset the receivable channels in your area using automatic presetting. Then, if there are any unwanted channels, disable them manually. If you have decided which channels you wish to preset, set them directly using manual presetting.

Before you start...

- Turn on the VCR and the TV.
- Set the TV to the VCR channel (channel 3 or 4). If your TV is connected to the VCR using A/V connections, set the TV to video input.
- Press TV/VTR to display the VTR indicator in the VCR's display window.
- Press INPUT SELECT so that a channel number appears in the VCR's display window.

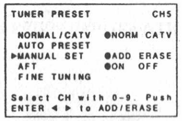
Presetting all receivable channels automatically

1 **Press MENU.**
The main MENU appears on the TV screen.



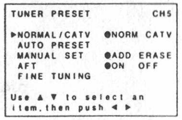
```
MENU                    PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

2 **Press CURSOR ▲/▼ to move the cursor (▶) to TUNER PRESET, then press EXECUTE.**
The TUNER PRESET menu appears on the TV screen.



```
TUNER PRESET              CH5

 NORMAL/CATV   ●NORM CATV
 AUTO PRESET
▶MANUAL SET    ●ADD ERASE
 AFT           ●ON  OFF
 FINE TUNING

Select CH with 0-9. Push
ENTER ◀ ▶ to ADD/ERASE
```

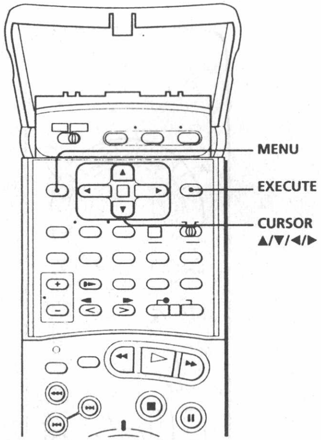
3 **Press CURSOR ▲/▼ to move the cursor (▶) to NORMAL/CATV.**



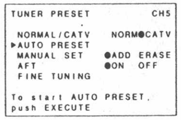
```
TUNER PRESET              CH5

▶NORMAL/CATV   ●NORM CATV
 AUTO PRESET
 MANUAL SET    ●ADD ERASE
 AFT           ●ON  OFF
 FINE TUNING

Use ▲ ▼ to select an
item,then push ◀ ▶
```

4 **Select NORM or CATV using CURSOR ◀/▶:**

- To preset cable TV channels, select CATV.
- To preset VHF and UHF channels, select NORM.

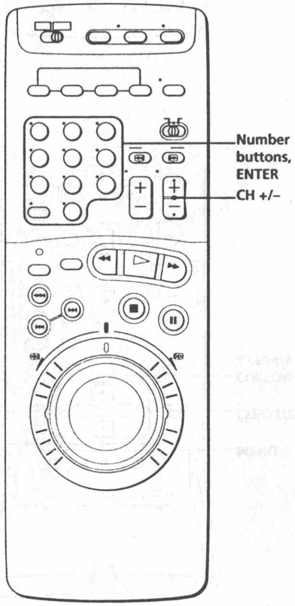


5 **Press CURSOR ▲/▼ to move the cursor (▶) to AUTO PRESET, then press EXECUTE.**
All receivable channels are preset in numerical sequence. When no more receivable channels can be found, presetting stops and the picture from the lowest numbered channel is displayed on the TV screen.

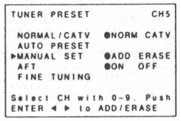


```
TUNER PRESET             CH5

 NORMAL/CATV     NORM●CATV
▶AUTO PRESET
 MANUAL SET     ●ADD ERASE
 AFT            ●ON   OFF
 FINE TUNING

To start AUTO PRESET,
push EXECUTE
```

Presetting/disabling channels manually

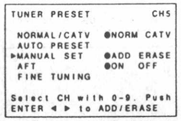


1 **Display the TUNER PRESET menu.**
For instructions, follow steps **1** and **2** in "Presetting all receivable channels automatically."



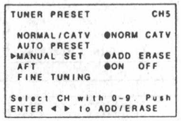
```
TUNER PRESET             CH5

 NORMAL/CATV    ●NORM CATV
 AUTO PRESET
▶MANUAL SET     ●ADD ERASE
 AFT            ●ON   OFF
 FINE TUNING

Select CH with 0-9. Push
ENTER ◀ ▶ to ADD/ERASE
```

2 **Select the channel to preset or disable:**
- To preset a channel, enter the channel number by pressing the number buttons then ENTER.
- To disable a channel, select the channel number by pressing CH +/–.



```
TUNER PRESET             CH5

 NORMAL/CATV    ●NORM CATV
 AUTO PRESET
▶MANUAL SET     ●ADD ERASE
 AFT            ●ON   OFF
 FINE TUNING

Select CH with 0-9. Push
ENTER ◀ ▶ to ADD/ERASE
```

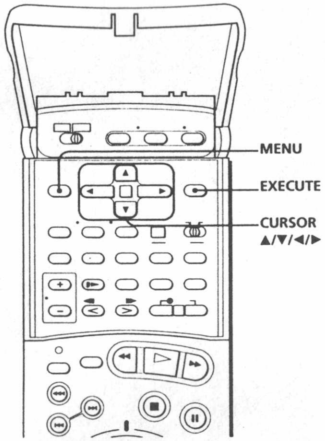
3 **Set MANUAL SET to ADD or ERASE, using CURSOR ▲/▼/◀/▶:**
- To preset a channel, select ADD.
- To disable a channel, select ERASE.

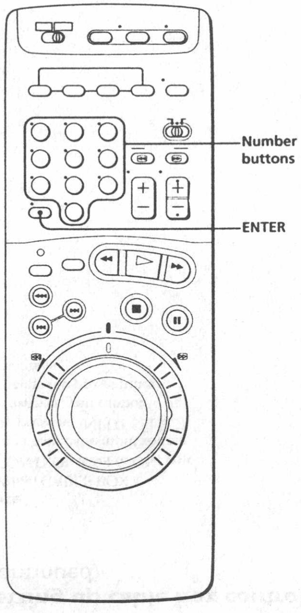


```
TUNER PRESET             CH5

 NORMAL/CATV    ●NORM CATV
 AUTO PRESET
▶MANUAL SET     ●ADD ERASE
 AFT            ●ON   OFF
 FINE TUNING

Select CH with 0-9. Push
ENTER ◀ ▶ to ADD/ERASE
```

4 **Repeat steps 2 and 3 to preset or disable channels as required, then press EXECUTE.**

Presetting channels
(continued)





Cable TV channel assignment

Cable TV systems use letters or numerals to designate channels. This VCR is designed to correspond with standard cable systems. The chart below shows the channel numbers on this VCR and the corresponding cable TV channels. Note that the channel number assignment shown in the chart may not correspond to the channel number used by your local cable company. Check with your local cable TV company for more information on the available channels.

Number on this VCR	1	2	3	...	12	13	14	15	16	17
Cable TV channel	A-8	2	3	...	12	13	A	B	C	D

18	19	20	21	22	23	24	25	26	27	28	29	30	31
E	F	G	H	I	J	K	L	M	N	O	P	Q	R

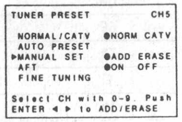
32	33	34	35	36	37	38	...	93	94	95	96	97	98
S	T	U	V	W	W+1	W+2	...	W+57	W+58	A-5	A-4	A-3	A-2

99	100	101	...	124	125
A-1	W+59	W+60	...	W+83	W+84

If the picture is not clear

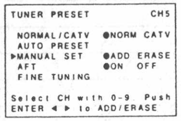
Normally, the Auto Fine Tuning (AFT) function automatically tunes in channels clearly. If, however, the picture of a channel is not clear, you may also use the manual tuning function.

1 **Display the TUNER PRESET menu.**
For instructions, follow steps **1** and **2** in "Presetting all receivable channels automatically."



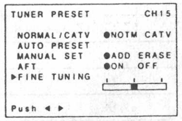
```
TUNER PRESET             CH5

 NORMAL/CATV    ●NORM CATV
 AUTO PRESET
▶MANUAL SET     ●ADD ERASE
 AFT            ●ON   OFF
 FINE TUNING

Select CH with 0-9. Push
ENTER ◀ ▶ to ADD/ERASE
```

2 **Select the channel you want to fine-tune by pressing the number buttons and then ENTER.**



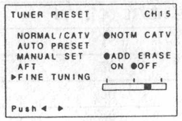
```
TUNER PRESET             CH5

 NORMAL/CATV    ●NORM CATV
 AUTO PRESET
▶MANUAL SET     ●ADD ERASE
 AFT            ●ON   OFF
 FINE TUNING

Select CH with 0-9. Push
ENTER ◀ ▶ to ADD/ERASE
```

3 **Press CURSOR ▲/▼ to move the cursor (▶) to FINE TUNING.**
The fine tuning meter appears.



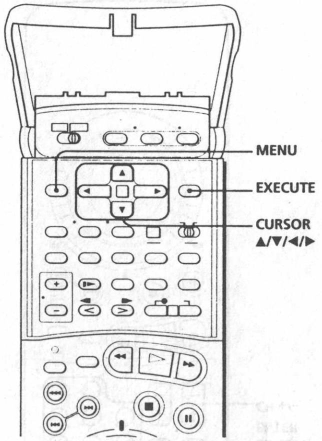
```
TUNER PRESET            CH15

 NORMAL/CATV    ●NOTM CATV
 AUTO PRESET
 MANUAL SET     ●ADD ERASE
 AFT            ●ON   OFF
▶FINE TUNING

Push ◀ ▶
```

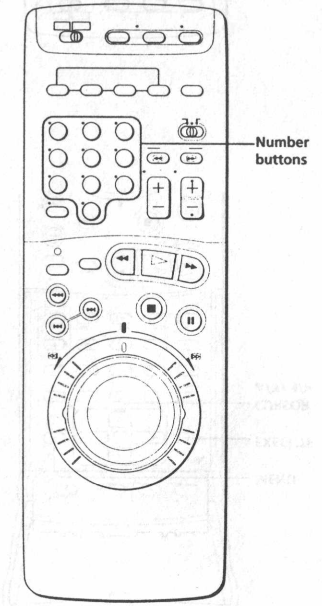
4 **Press CURSOR ◀/▶ to get a clearer picture, then press EXECUTE.**
Note that the AFT setting switches to OFF.



```
TUNER PRESET            CH15

 NORMAL/CATV    ●NOTM CATV
 AUTO PRESET
 MANUAL SET     ●ADD ERASE
 AFT             ON ●OFF
▶FINE TUNING

Push◀ ▶
```

Setting up cable box control

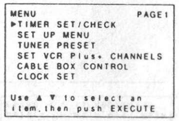




Your VCR includes a cable box control feature which allows the VCR to control most brands of cable boxes via the cable mouse. With cable box control, the VCR controls channels on the cable box for timer recording. You can also use the VCR's remote commander to change channels on the cable box whenever the cable box is turned on. To use cable box control, you need to connect the cable mouse (page **11**) and set the code number and output channel.

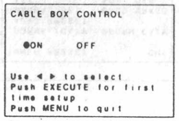
This VCR is programmed with codes necessary to control channel selection on most brands of cable boxes at the time this VCR was manufactured. It is possible that new cable boxes may be introduced that cannot be controlled with this VCR's cable mouse. If you have a cable box that is incompatible with this VCR, contact your cable operator — they may be able to provide you with a compatible cable box.

1 **Press MENU.**
The main MENU appears on the TV screen.



```
MENU                    PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

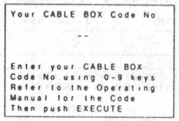
2 **Press CURSOR ▲/▼ to move the cursor (▶) to CABLE BOX CONTROL, then press EXECUTE.**
The CABLE BOX CONTROL menu appears.



```
CABLE BOX CONTROL

 ●ON      OFF

Use ◀ ▶ to select
Push EXECUTE for first
time setup
Push MENU to quit
```

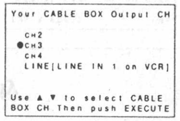
3 **Press CURSOR ◀/▶ to select ON, then press EXECUTE.**

4 **Enter the cable box code number by pressing the number buttons, then press EXECUTE.**
Find your cable box code number from the chart on page 28.



```
Your CABLE BOX Code No

           --

Enter your CABLE BOX
Code No using 0-9 keys
Refer to the Operating
Manual for the Code
Then push EXECUTE
```

5 **Select the cable box output channel using CURSOR ▲/▼, then press EXECUTE.**



```
Your CABLE BOX Output CH

  CH2
 ●CH3
  CH4
  LINE[LINE IN 1 on VCR]

Use ▲ ▼ to select CABLE
BOX CH Then push EXECUTE
```

Setting up cable box control (continued)

Note
- When CABLE BOX CONTROL is set to ON, you can change the input source by pressing INPUT SELECT. However, you cannot change the preset tuner channels.

Compatible cable boxes and their code numbers

Cable box brand	Code number Primary use	Code number Secondary use
Drake		38
Eastern		20
Gemini		28
Hamlin/Regal	14, 15, 43	16
Jerrold/GI	1, 2, 3, 4	10, 11, 30, 31, 32
Macom		26, 37
Magnavox		36
Oak	17, 18	19
Panasonic	12, 13	
Philips	22	21, 23, 24
Pioneer	8, 9	
RCA		25
Regency	20	
Scientific Atlanta	5, 6	
Texscan		27
Tocom	10, 11	
Toshiba		35
Unika		41
United Cable		3
United Satellite		42
Video Tech		39
Videoway		40
Viewstar		22, 23
Zenith	7	33, 34

The VCR contains 43 cable box code numbers (1 to 43). If your cable box is not listed above, you may try one of the other codes.

To check the cable box control setting

1 Press CH +/– on the remote commander. Does the channel indicator on the cable box change? (Point the remote commander at the VCR, not at the cable box.)

2 Press all 10 number buttons (0 to 9) on the remote commander. Does the channel indicator on the cable box change?

If the answer to both **1** and **2** is "yes," you have made the correct setting.

If you cannot get your VCR to control the cable box

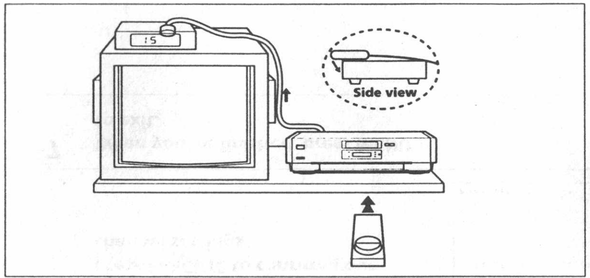
✓ Check the position of the cable mouse.

✓ Place the cable box and VCR away from each other. Do not place the cable box on top of the VCR.

✓ Try the setup again making sure to use the correct control code. If the cable box still does not respond you can try other codes.

If your cable box still does not operate with the cable mouse, contact your cable company to see if they can provide you with a compatible cable box.

Tips for normal viewing



- Place the cable mouse so that it hangs out over the cable box front.
- Point the remote commander at the VCR, not at the cable box.

Setting up VCR Plus+

Example of "PlusCode"

PlusCode

5:30 14 MOVIE — Musical (2hrs.) 33044
2 SPORTS — Golf (1hr. 25min.) 42060
CNN — WS 9974
6:30 2 3 4 DRAMA — Comedy (2hrs.) 17390
5 SCIENCE AND TECHNOLOGY (1hr. 15min.) 73457

Example of "Channel Line-up Chart"

SAMPLE

CABLE TV	Guide channel number
A&E Arts & Entertainment Network	39
AMC American Movie Classics	35
BRV Bravo (program grid only)	54
CNN Cable News Network	42
CSP C-SPAN	28
DIS The Disney Channel	53
DSC The Discovery Channel	37
ESN ESPN	34
FAM The Family Channel	47
HBO Home Box Office	33
LIF Lifetime	46
MAX Cinemax	45
MSG Madison Square Gardens Network	19
MTV Music Television	48
NIK Nickelodeon	38
SC Sports Channel	59
SCA Sports Channel America	70
SHO Showtime	41
TBS TBS SuperStation	43
TMC The Movie Channel	58
TNN The Nashville Network	49
TNT Turner Network Television	52
USA USA Network	44

VCR Plus+ is a feature in Sony VCRs that simplifies the task of programming the VCR to make timer recordings.

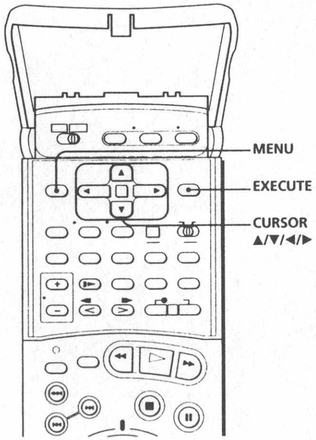
How VCR Plus+ works

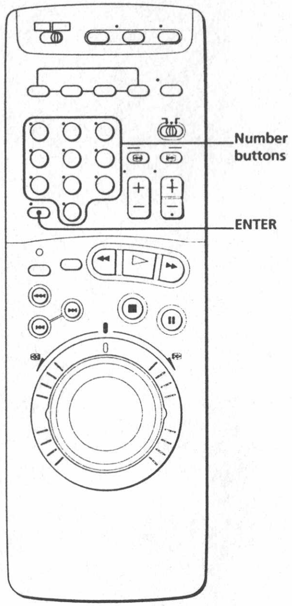
Whenever you want to record a TV program, all you need to do is look up the program's "PlusCode," a number assigned to each program that's published in the TV section of most newspapers, cable TV listings, and even *TV GUIDE* magazine. Then, just enter the PlusCode of the program you want and the VCR is automatically programmed to record that show. It's that simple. With VCR Plus+, you no longer have to go through a lengthy and often repetitive procedure when you set start and stop times, channel numbers, and dates. All this information is automatically sent to your VCR when you enter the program's PlusCode.

How to set up your VCR

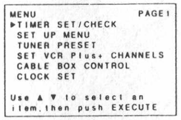
Setting up your VCR involves coordinating the TV channel number (the number you turn to on your TV or VCR to watch a program) with the guide channel (the number that's assigned to that channel in your program guide). To get the guide channel numbers, find the "Channel Line-up Chart" in the program guide for your area that features VCR PlusCodes. It usually looks like the example to the left.

For each channel your VCR receives, use the Channel Line-up Chart to check that the channel numbers match. For example, if HBO is listed in the Channel Line-up Chart on channel 33, and your VCR receives HBO on channel 15, you need to coordinate these numbers using the following procedure. For channels in which the numbers are the same (for example, if your VCR receives HBO on channel 33, and the guide channel number is 33), you can skip this procedure.



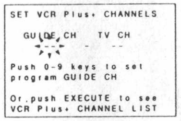


1 **Press MENU.**
The main MENU appears on the TV screen.



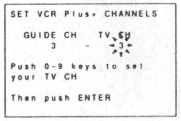
```
MENU                     PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

2 **Press CURSOR ▲/▼ to move the cursor (▶) to SET VCR Plus+ CHANNELS, then press EXECUTE.**
The SET VCR Plus+ CHANNELS menu appears and the GUIDE CH column is highlighted.



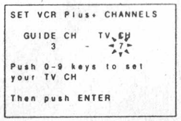
```
SET VCR Plus+ CHANNELS

  GUIDE CH    TV CH
    ---    -   --

Push 0-9 keys to set
program GUIDE CH

Or, push EXECUTE to see
VCR Plus+ CHANNEL LIST
```

3 **Enter the channel number assigned in the program guide and press ENTER.**
The TV CH column is highlighted.

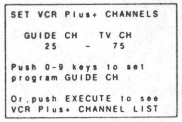


```
SET VCR Plus+ CHANNELS

  GUIDE CH    TV CH
     3     -    3

Push 0-9 keys to set
your TV CH

Then push ENTER
```

4
- **If you made Hookup 1, 2, or 3, enter the actual number on your TV (and VCR) and press ENTER.**
- **If you made Hookup 4, enter the cable box output channel (usually 2, 3, or 4) and press ENTER.**
- **If you have made Hookup 5, enter the actual number on your TV (and VCR) for an unscrambled channel and press ENTER. For a scrambled channel, enter the cable box output channel and press ENTER.**



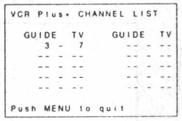
```
SET VCR Plus+ CHANNELS

  GUIDE CH    TV CH
     3     -    7

Push 0-9 keys to set
your TV CH

Then push ENTER
```



```
SET VCR Plus+ CHANNELS

  GUIDE CH    TV CH
    25     -   75

Push 0-9 keys to set
program GUIDE CH

Or, push EXECUTE to see
VCR Plus+ CHANNEL LIST
```

5 **Repeat steps 3 and 4 for each channel whose numbers don't match.**

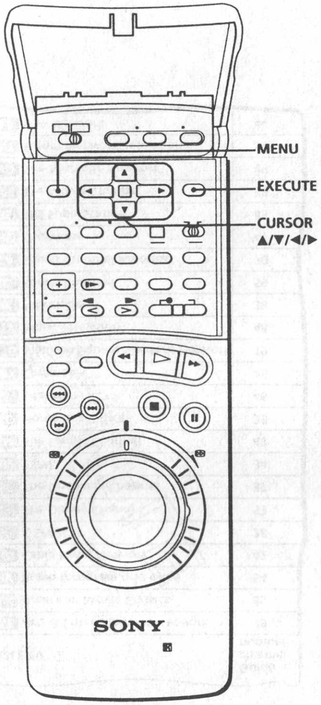
6 **When you have set all channels, press EXECUTE to confirm your channel settings.**



```
VCR Plus+ CHANNEL LIST

  GUIDE  TV      GUIDE  TV
    3 -  7        -- - --
   -- - --        -- - --
   -- - --        -- - --
   -- - --        -- - --
   -- - --        -- - --

Push MENU to quit
```

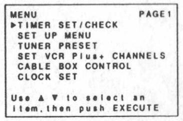
7 **When you've finished, press MENU to exit.**

Using the SET UP menu



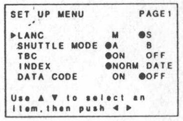
The SET UP menu allows you to make a number of optional setup choices. For a list of menu choices, see the following page.

1 **Press MENU.**
The main MENU appears on the TV screen.



```
MENU                     PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

2 **Press CURSOR ▲/▼ to move the cursor (▶) to SET UP MENU, then press EXECUTE.**
The SET UP MENU appears on the TV screen.



```
SET UP MENU              PAGE1

▶LANC              M    ●S
 SHUTTLE MODE     ●A     B
 TBC              ●ON    OFF
 INDEX            ●NORM  DATE
 DATA CODE         ON   ●OFF

Use ▲ ▼ to select an
item, then push ◀ ▶
```

3 **Press CURSOR ▲/▼ to move the cursor (▶) to the desired menu choice.**

4 **Set the item to the desired setting using CURSOR ◀/▶.**

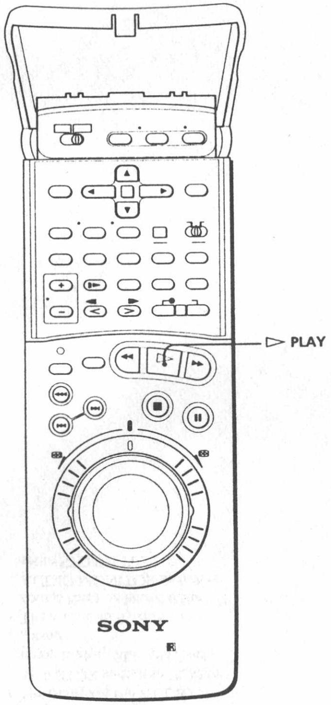
5 **Press EXECUTE to return to the original screen.**

Menu choices
Initial settings are indicated in bold letters.

Menu option	Set this option to
LANC	• M to control another VCR with this VCR using the LANC ⏻ connector. • **S** to control this VCR with another VCR.
SHUTTLE MODE	• **A** to use this remote commander with a VCR that doesn't have a JOG/SHUTTLE function. • B to use this remote commander with a VCR that has a JOG/SHUTTLE function.
TBC	• **ON** to correct any slight shaking or vibration. Generally, use this setting. • OFF to leave any shaking or vibration uncorrected.
INDEX	• **NORM** to search for index signals in numerical order. • DATE to search for index signals by date.
DATA CODE	• ON to have the day, month, year, entered on the tape. (Use if your video camera has this function.) • **OFF** to not have the day, month, year, entered on the tape.
Hi-8	• **AUTO** when you want to record a **Hi8** tape in the **Hi8** format. • OFF when you want to record a **Hi8** tape in the standard 8 mm format.
AUTO ANT SEL	• **ON** if your TV is connected only to VHF/UHF OUT on the VCR. To play a tape, set the TV to the channel for video playback (channel 3 or 4). • OFF if your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR. To play a tape, set the TV to the VCR input.
AUTO STEREO	• **ON** to receive stereo programs. • OFF to reduce noise in a stereo program. Although the sound may improve, the sound becomes monaural.
L IN 1 VIDEO	• **NORM** if you have connected the video output jack of the other VCR to the LINE IN 1 VIDEO. • S if you have connected the S VIDEO output connector of the other VCR to the LINE IN 1 VIDEO connector of this VCR.
SAP	• **AUTO** to record SAP sound on the hi-fi (standard) track and the main sound on the PCM track. • OFF to record both the main sound and the SAP sound on the hi-fi (standard) track.

Basic Operations

Playing a tape



Tip
- For further information on searching and playback functions, see "Playing/searching at various speeds" on page **48**.

This section shows you how to play back a video tape.

1 Turn on your TV and tune in to the VCR:
- If the TV is connected to the VCR using the S-video cable or an audio/video cable, set the TV to video input.
- If the TV is connected to the VCR using only the antenna, set the TV to the program position for the VCR.

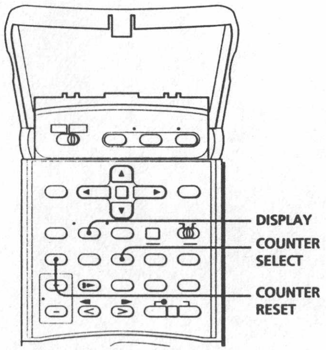
2 Insert a tape.
The VCR turns on automatically.

3 Press ▷ PLAY to start playing.
When the tape reaches the end, the VCR automatically rewinds it to the beginning. (The power remains on.)

Additional tasks

To	Press
Stop play	■ STOP
Pause play	❚❚ PAUSE
Resume play after pause	❚❚ PAUSE or ▷ PLAY
Search forward	Press the JOG/SHUTTLE button, then turn the JOG dial/SHUTTLE ring to ⊕ during playback
Search backward	Press the JOG/SHUTTLE button, then turn the JOG dial/SHUTTLE ring to ⊖ during playback
Fast-forward the tape	▶▶ FF during stop
Rewind the tape	◀◀ REW during stop
Rewind the tape at high speed	◀◀◀ HI-SPEED REW

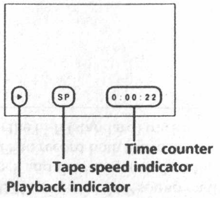
Notes
- When a tape is reinserted, the counter returns to "0H00M00S."
- The counter will not work on tape portions with no recording.



Notes
- The time counter does not advance during playback of an unrecorded tape segment.
- The remaining tape length is displayed a short moment after you insert a tape and press ▷ PLAY.
  "-H–M" appears in the display window if the VCR cannot detect the remaining tape length.
- The remaining tape length counter halts during pause, stop, slow motion and frame-by-frame playback. The counter advances and displays correct information when you return to normal playback or press X2.
- The remaining tape length may not be displayed correctly when using the following types of tapes:
  - pre-recorded commercial tapes
  - tapes that are not reeled properly at the beginning
  - tapes that contain unrecorded segments or portions recorded with different tape speeds
  - poor-quality or non-standard tapes
  - cleaning cassettes
- The remaining tape length counter is intended for rough time measurement only.

Displaying the remaining tape length and time counter

Press DISPLAY to turn the display on or off.



Using the time counter

At the point on a tape that you want to find later, press COUNTER RESET to reset the counter to "0H00M00S." When you rewind or advance the tape to this point, refer to the counter.

Checking the remaining tape length

To check the remaining tape length, press COUNTER SELECT twice in succession during recording or playback. At the first press, the TIME CODE indicator lights up in the display window. At the second press, the REMAIN indicator lights up and the remaining tape length is displayed. To display the time counter, press COUNTER SELECT again.
When using P6-135, E6-140, and P6-165 tapes, set the TAPE SELECT switch to 135.

Displaying the DATA CODE

Set DATA CODE to ON in the SET UP MENU and press COUNTER SELECT to display the counter in the display window. When you play back tapes that have been recorded with DATA CODE signals, the date, month, and year of the recording are displayed on the TV screen. If the tape does not contain any DATA CODE information, the time counter is displayed. This VCR does not record DATA CODE signals.

Notes
- Normally set the AUDIO MONITOR switch to PCM to enjoy high-quality playback sound.
- The additionally dubbed sound can't be heard if the AUDIO MONITOR switch is set to STD (Hi-Fi).

Selecting the audio recording pattern

Select the desired track to play back by setting the AUDIO MONITOR switch on the VCR.

To listen to	Set the AUDIO MONITOR switch to
Digital stereo signals recorded on the PCM track	PCM
Mixed sound of the PCM track and the standard track	MIX
Hi-fi stereo sound recorded on the standard track	STD (Hi-Fi)
Additionally dubbed sound	PCM
Additionally dubbed sound and the original sound on the standard track	MIX

If the sound is not heard or is heard only intermittently

When a tape which has been recorded on a video camera recorder or a video cassette recorder without the PCM function is played on this unit, set the AUDIO MONITOR setting to STD. The PCM indicator may blink, but it will not affect the sound.

When the TV/VCR connection is made to a TV without audio/video inputs

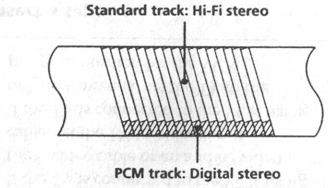
To monitor the playback sound in stereo, connect the VCR to a stereo system.

To listen to the sound on both the PCM and the standard track

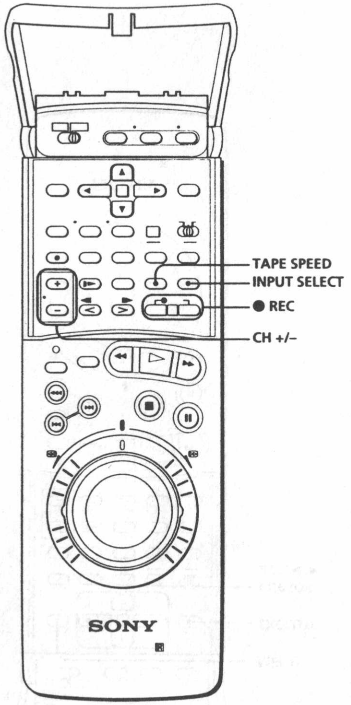
Set the AUDIO MONITOR switch on the operation panel to MIX. If the sound is hard to distinguish, use the STD AUDIO LEVEL to adjust the standard sound level. You cannot adjust the PCM sound level.

How sound is recorded on a video tape

This VCR records sound onto two different tracks. High-fidelity sound (usually stereo) is recorded onto the standard (AFM) track along with the picture. PCM (digital sound) is recorded onto the PCM track along the edge of the tape.



Recording TV programs



Tip
- To select channels, you can also use the number buttons on the remote commander. Enter the desired channel number using the number buttons, then press ENTER.

This section shows you how to record TV programs in the most basic way: manual recording. With manual recording, you start the VCR recording when the program begins, then stop it when the program ends. The VCR also provides the following ways of recording:
- Manually start recording, then stop it automatically—"Recording using the quick timer" (page **38**)
- Automatically start and stop recording—"Recording TV programs using the timer" (page **41**)
- Automatically start and stop recording just by entering the "Plus Code"—"Recording TV programs using VCR Plus+" (page **44**)

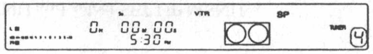
1 Turn on your TV and tune in to the VCR:
- If the TV is connected to the VCR using the S-video cable or an audio/video cable, set the TV to video input.
- If the TV is connected to the VCR using only the antenna, set the TV to the channel for the VCR.

When using a cable box, turn it on.

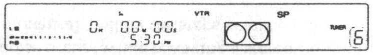
2 On the operation panel, set the PCM REC LEVEL control to "5" and the PCM REC BALANCE control to the center.

3 Insert a tape with the safety tab slid back so that the red portion does not show.

4 Press INPUT SELECT until a channel number appears in the VCR's display window.

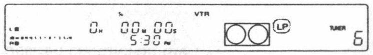


5 Select the desired channel by pressing CH +/–.



6 Select the tape speed, SP (standard play) or LP (long play), by pressing TAPE SPEED.

See "To select tape speeds" on the next page.



7 Start recording by pressing ● REC.

When the tape reaches the end, the VCR automatically rewinds it to the beginning.

Recording TV programs (continued)

Note
- If you insert a cassette with its safety tab slid to show the red portion, the VCR ejects it when you press ● REC.

Tips
- To cut out an unwanted scene while recording, press ❚❚ PAUSE, turn the JOG dial/SHUTTLE ring on the VCR to rewind the tape to the beginning of the unwanted scene, then press ❚❚ PAUSE to resume recording.
- The display appears on the TV screen indicating information about the tape, but the information will not be recorded on the tape.
- If you don't want to watch TV while recording, you can turn off the TV. When using a cable box, make sure to leave it on.

Notes
- If your tape ends during quick-timer recording, recording stops and the VCR turns off. The tape does not rewind automatically.
- If a power interruption occurs during quick-timer recording, recording stops and your VCR turns off. If the interruption lasts less than one hour and the power is restored before the recording end time, recording will start again from that point.

To stop recording
Press ■ STOP.

To select tape speeds
When recording, select either SP or LP. LP provides recording time twice as long as SP. However, SP provides better picture quality. You can mix SP and LP on the same tape. When playing back, the VCR automatically detects the tape speed. See the table below for the maximum recording/playback time in each speed.

Tape type	Maximum recording/playback time	
	SP	LP
E6/P6-30	30 min.	1 hr.
E6/P6-60	1 hr.	2 hrs.
E6/P6-90	1 hr. 30 min.	3 hrs.
E6/P6-120	2 hrs.	4 hrs.
P6-150	2 hrs. 30 min.	5 hrs.
E6-180	3 hrs.	6 hrs.

If you use other types of tapes than those listed above, the remaining tape length may not be displayed correctly.

Recording using the quick timer

The quick timer enables you to record for a specified period of time in intervals of 30 minutes. Once you specify the recording time, the VCR automatically stops recording. Before you begin, check that the clock is set correctly.

After you start recording, press QUICK TIMER on the operation panel until the desired duration appears in the display window. The TIMER indicator on the VCR lights up. Each press increases the recording duration in increments of 30 minutes as shown below.

→ 0:00 → 0:30 → 1:00 - - - - → 7:30 → 8:00

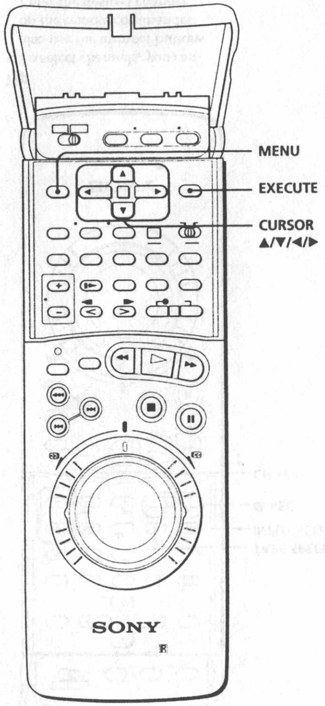
The recording duration decreases minute by minute to 0:00, then the VCR turns off automatically.

To stop recording
To stop quick-timer recording while the VCR is recording a program, press TIMER REC ON/OFF to turn off the TIMER indicator on the VCR.

To extend the recording duration while recording
Press QUICK TIMER until the desired duration appears in the display window.

Tip

- For information on how the VCR records sound, see "How sound is recorded on a video tape" on page **36**.



Watching a TV program while recording another

You can watch a TV program and record another at the same time.

1 Press TV/VTR on the top right of the remote commander to turn off the VTR indicator in the display window.

2 If the TV is connected to the VCR using an audio/video cable, set the TV to TV input.
If the TV is connected to the VCR using only the antenna cable, skip this step.

3 Select the desired channel on the TV.

Recording stereo and SAP programs

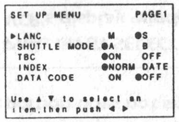
Stereo programs

This VCR automatically records stereo programs in stereo. When stereo programs are received, the STEREO indicator appears in the display window. If noise occurs while receiving a stereo program, record the program in monaural. Follow the steps below.

SAP programs

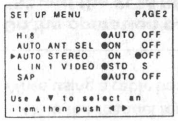
Normally, this VCR records main sound on both the PCM and the hi-fi (standard) tracks. To record SAP (Second Audio Program) sound on the hi-fi (standard) track, follow the steps below.

1 Press MENU and select SET UP MENU.



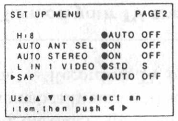
```
SET UP MENU              PAGE1

▶LANC               M    ●S
 SHUTTLE MODE ●A         B
 TBC          ●ON        OFF
 INDEX        ●NORM DATE
 DATA CODE     ON   ●OFF

Use ▲ ▼ to select an
item,then push ◀ ▶
```

2 • To record stereo programs in monaural:
Set AUTO STEREO to OFF using CURSOR ▲/▼/◀/▶.



```
SET UP MENU              PAGE2

 Hi8             ●AUTO OFF
 AUTO ANT SEL    ●ON   OFF
▶AUTO STEREO      ON  ●OFF
 L IN 1 VIDEO    ●STD  S
 SAP             ●AUTO OFF

Use ▲ ▼ to select an
item,then push ◀ ▶
```

• To record SAP sound on the hi-fi (standard) track:
Set SAP to AUTO using CURSOR ▲/▼/◀/▶.



```
SET UP MENU              PAGE2

 Hi8             ●AUTO OFF
 AUTO ANT SEL    ●ON   OFF
 AUTO STEREO     ●ON   OFF
 L IN 1 VIDEO    ●STD  S
▶SAP             ●AUTO OFF

Use ▲ ▼ to select an
item,then push ◀ ▶
```

3 Press EXECUTE to store the setting.

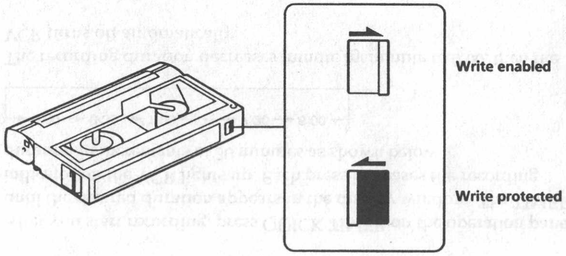
Recording TV programs (continued)

To monitor SAP sound while recording
On the operation panel, set the AUDIO MONITOR switch to STD.

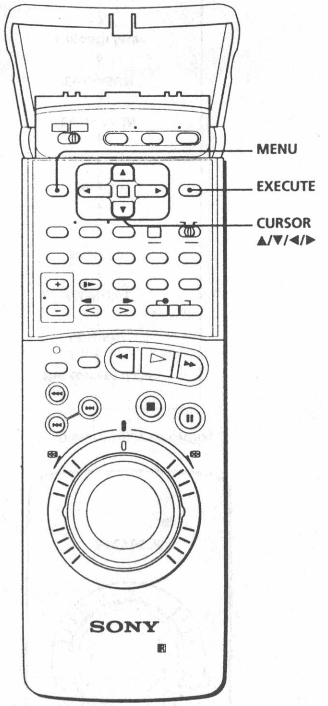
Saving a recording

Video tapes have a safety tab to protect against accidental recording. To prevent accidental erasure of a recording, slide out the tab on the cassette so that the red portion is visible. A tape with its safety tab in this position ejects if you try to record on it.

To re-record on a tape, slide the tab so that the red portion is not visible.



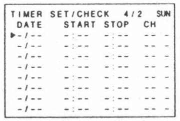
Recording TV programs using the timer



This section shows you how to let the VCR automatically start and stop recording TV programs. You can preset up to eight programs within a one month time frame. If VCR Plus+ is available in your area, see the section "Recording TV programs using VCR Plus+" on page **44** for easier timer recording.

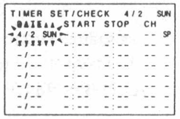
Before you start...
- Check that the clock is set correctly.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Turn on your TV and tune in to the VCR.
  When using a cable box, turn it on.

1 **Press MENU and select TIMER SET/CHECK, then press EXECUTE.**
A short beep alerts you if the clock needs to be set.



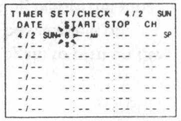
```
TIMER SET/CHECK   4/2  SUN
 DATE     START STOP  CH
▶-/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
```

2 **Set the date to start recording:**
1 Press CURSOR ▶.
Make sure today's date is selected. If it isn't, reset the clock to the correct time.
2 Press CURSOR ▲ to set the month and date.
The day of the week is set automatically.
To record the same program every day or the same day once a week, see "Daily/weekly recording" on page **43**.

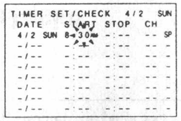


```
TIMER SET/CHECK   4/2  SUN
 DATE     START STOP  CH
 4/2 SUN  -:--  -:--  --  SP
          -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
```

3 **Set the time to start recording:**
1 Press CURSOR ▶ to select the hour under "START," then press CURSOR ▲/▼ to set the hour.
2 Press CURSOR ▶ to select the minutes under "START," then press CURSOR ▲/▼ to set the minutes.



```
TIMER SET/CHECK   4/2  SUN
 DATE     START STOP  CH
 4/2 SUN  8 --AM -:--  --  SP
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
```



```
TIMER SET/CHECK   4/2  SUN
 DATE     START STOP  CH
 4/2 SUN  8 30AM -:--  --  SP
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
 -/--     -:--  -:--  --  -
```

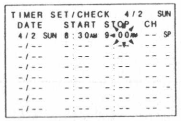
(continued)

Recording TV programs using the timer (continued)

Tips
- To set the channel, you can also use the CH +/– or number buttons.
- To record video sources from LINE IN 1 or 2 jacks, press INPUT SELECT to display "LINE1" or "LINE2" in the "CH" position.
- When CABLE BOX CONTROL is set to ON, timer recording cannot be done through LINE IN.
- To set the recording tape speed, you can also use TAPE SPEED.
- To change or correct a setting before confirming it, press CURSOR ▶ to highlight the item you want to change and reset it.

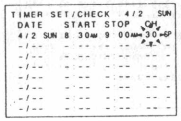
Note
- If the ▭ tape indicator in the VCR's display window and the TIMER indicator on the VCR flash when you press TIMER REC ON/OFF, check for one of the following causes:
  - no cassette has been inserted,
  - the tape is at its end, or
  - the safety tab on the cassette has been slid to show the red portion underneath.

4 **Press CURSOR ▶, then set the time to stop recording in the same way.**



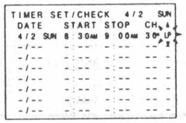
```
TIMER SET/CHECK   4/2  SUN
 DATE     START  STOP   CH
 4/2 SUN  8:30AM 9 00AM --  SP
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
```

5 **Press CURSOR ▶, then press CURSOR ▲/▼ to select the channel you want to record.**
Only the channels preset in the VCR will appear even if CABLE BOX CONTROL is set to ON. When using cable box control, the cable box channels appear.



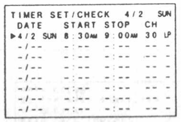
```
TIMER SET/CHECK   4/2  SUN
 DATE     START  STOP   CH
 4/2 SUN  8 30AM 9 00AM 30  SP
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
```

6 **Press CURSOR ▶, then press CURSOR ▲/▼ to select the tape speed, SP (standard play) or LP (long play).**
See "To select tape speeds" on page **38**.



```
TIMER SET/CHECK   4/2  SUN
 DATE     START  STOP   CH
 4/2 SUN  8 30AM 9 00AM 30  LP
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
```

7 **To confirm your program, press CURSOR ▶.**
All the settings become deselected and the cursor (▶) appears in the leftmost column.
To preset another timer setting, move the cursor to the next line using CURSOR ▼ and repeat steps **2** to **7**.

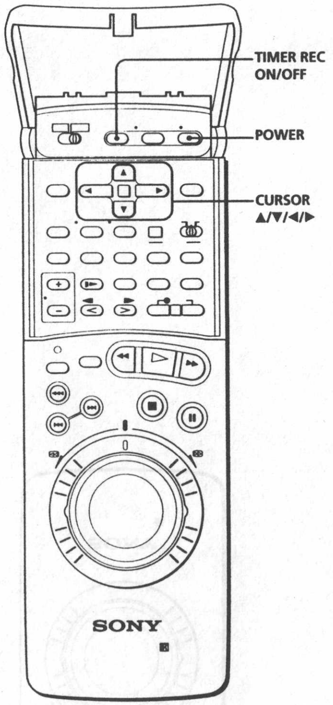


```
TIMER SET/CHECK   4/2  SUN
 DATE     START  STOP   CH
▶4/2 SUN  8 30AM 9 00AM 30  LP
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
 -/--     -:--   -:--   --  -
```

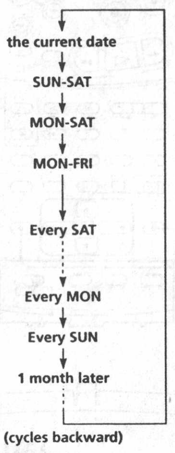
8 **After making the desired timer settings, press EXECUTE.**

9 **Press TIMER REC ON/OFF.**
The TIMER indicator on the VCR lights up and the VCR stands by for recording. When using a cable box, leave it on.
The VCR automatically turns on and starts recording at the preset start time, and turns off at the preset stop time.

To stop recording
To stop while the VCR is recording a program, press TIMER REC ON/OFF to turn off the TIMER indicator on the VCR.



Daily/weekly recording



(cycles backward)

To use the VCR while recording

You can do the following tasks during timer recording.

To	Press
Reset the counter to "0H00M00S"	COUNTER RESET
Display tape information on the TV screen	DISPLAY
Check the timer settings	MENU and select TIMER SET/CHECK
Watch another TV program	TV/VTR (See "Watching a TV program while recording another" on page 39.)

Using the VCR before timer recording begins

Press TIMER REC ON/OFF to turn off the TIMER indicator on the VCR, then press POWER. The VCR is ready for use.

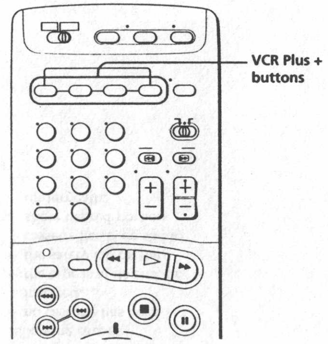
After using the VCR, press TIMER REC ON/OFF again to turn on the TIMER indicator on the VCR. When using a cable box, leave it on. Remember to reset the VCR to stand by for recording before the time you've set it to start recording, or the timer setting will be cancelled.

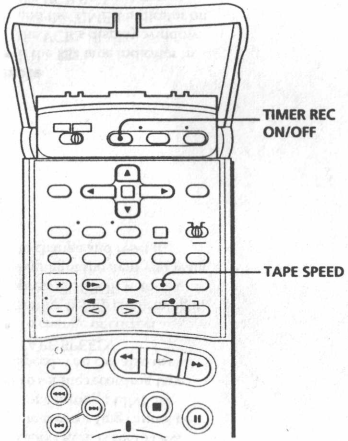
Daily/weekly recording

Daily recording records the same program every day of the week; weekly recording records the same program on the same day, every week.

When you set the date to start recording in step **2** of "Recording TV programs using the timer," press CURSOR ▼ until the desired day appears. Each time you press the button, the indication changes as shown on the left.

Recording TV programs using VCR Plus+





Tip

- If you've entered the wrong PlusCode, press TIMER CLEAR and start again from the beginning.

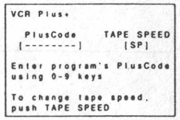
This section shows you another way of timer recording: recording using VCR Plus+. This allows you to record TV programs more easily. Just enter the program's "PlusCode," and the VCR will automatically record the program. You can preset up to eight programs within a one month time frame.

Before you start...

- Check that the clock is set correctly.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Turn on your TV and tune in to the VCR. When using a cable box, turn it on.

1 **Press VCR Plus+.**

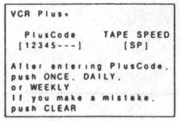
A short beep alerts you if the clock needs to be set.



```
VCR Plus+

  PlusCode     TAPE SPEED
 [--------]        [SP]

Enter program's PlusCode
using 0-9 keys

To change tape speed,
push TAPE SPEED
```

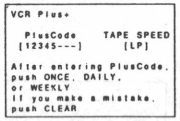
2 **Enter the desired program's PlusCode using the number buttons.**

If you make a mistake, reenter the PlusCode.



```
VCR Plus+

  PlusCode     TAPE SPEED
 [12345---]        [SP]

After entering PlusCode,
push ONCE, DAILY,
or WEEKLY
If you make a mistake,
push CLEAR
```

3 **Select the tape speed, SP (standard play) or LP (long play), by pressing TAPE SPEED.**



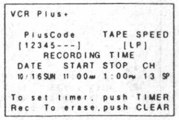
```
VCR Plus+

  PlusCode     TAPE SPEED
 [12345---]        [LP]

After entering PlusCode,
push ONCE, DAILY,
or WEEKLY
If you make a mistake,
push CLEAR
```

4 **Press ONCE, DAILY or WEEKLY according to the following:**

To record the program	Press
Only once	ONCE
Monday to Friday at the same scheduled time	DAILY
Every week at the same scheduled time	WEEKLY

The recording information appears on the TV screen: date, program start and stop times, channel number and tape speed. Check that the information is correct. If it is not, press TIMER CLEAR to cancel.

To preset another timer setting, repeat steps **1** to **4**.



```
VCR Plus+

  PlusCode     TAPE SPEED
 [12345---]        [LP]
     RECORDING TIME
 DATE    START STOP  CH
 10/16SUN 11 00AM 1:00PM 13 SP

To set timer, push TIMER
Rec  To erase,push CLEAR
```

5 Press TIMER REC ON/OFF to turn the VCR off.

The TIMER indicator on the VCR lights up and the VCR stands by for recording.

When using a cable box, leave it on.

The VCR automatically turns on, records the program and turns off.

Notes
- If the ▭ tape indicator in the VCR's display window and the TIMER indicator on the VCR flash when the VCR turns off, check for one of the following causes:
  - – no tape has been inserted,
  - – the tape is at its end, or
  - – the safety tab on the cassette has been slid to show the red portion underneath.

To stop recording

To stop while the VCR is recording a program, press TIMER REC ON/OFF to turn off the TIMER indicator on the VCR.

To use the VCR while recording

You can do the following tasks while recording using VCR Plus+.

To	Press
Reset the counter to "0H00M00S"	COUNTER RESET
Display tape information on the TV screen	DISPLAY
Check the timer settings	MENU and select TIMER SET/CHECK
Watch another TV program	TV/VTR (See "Watching a TV program while recording another" on page 39.)

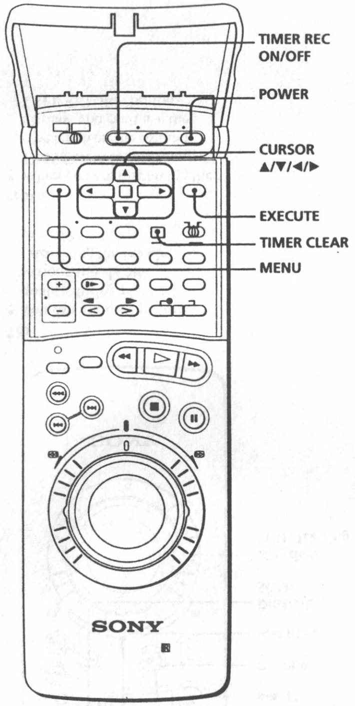
Using the VCR before recording begins

Press TIMER REC ON/OFF to turn off the TIMER indicator on the VCR, then press POWER. The VCR is ready for use.

After using the VCR, press TIMER REC ON/OFF again to turn on the TIMER indicator on the VCR. When using a cable box, leave it on. Remember to reset the VCR to stand by for recording before the time you've set it to start recording, or the timer setting will be cancelled.

Notes
- You cannot set VCR Plus+ in the following cases:
  - – When the VCR is turned off.
  - – While recording using the timer or quick timer.
- The timer will not accept settings in the following cases:
  - – When you select DAILY for a Saturday and Sunday program.
  - – When you select DAILY or WEEKLY for a program more than seven days ahead.
  - – When you enter the PlusCode of a program that has already ended.

Checking/cancelling timer settings



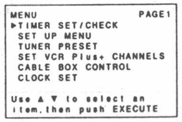
This section shows you how to check and cancel the timer settings after you've stored them in the VCR.

Before you start...
- Turn on your TV and tune in to the VCR.

1 Press TIMER REC ON/OFF to turn off the TIMER indicator on the VCR.

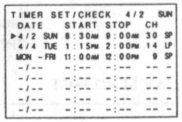
2 Press POWER to turn on the VCR.

3 Press MENU and select TIMER SET/CHECK, then press EXECUTE.



```
MENU                    PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

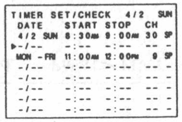
4 Check the timer settings:
- If you do not want to cancel the settings, press EXECUTE, then TIMER REC ON/OFF to return to recording standby.
- If you want to cancel the settings, press CURSOR ▲/▼ to move the cursor (▶) to the setting you want to cancel.



```
TIMER SET/CHECK  4/2   SUN
 DATE     START  STOP   CH
▶4/2 SUN  8:30AM 9:00AM 30 SP
 4/4 TUE  1:15PM 2:00PM 14 LP
MON -FRI 11:00AM 12:00PM  9 SP
 -/--     -:--   -:--   -- -
 -/--     -:--   -:--   -- -
 -/--     -:--   -:--   -- -
 -/--     -:--   -:--   -- -
 -/--     -:--   -:--   -- -
```

5 Cancel the timer setting:

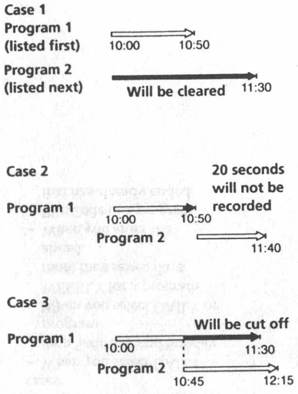
Press TIMER CLEAR, then EXECUTE. The VCR returns to the original screen. If there are any other timer settings left, press TIMER REC ON/OFF to return to recording standby.



```
TIMER SET/CHECK  4/2   SUN
 DATE     START  STOP   CH
 4/2 SUN  8:30AM 9:00AM 30 SP
▶-/--     -:--   -:--   -- -
MON -FRI 11:00AM 12:00PM  9 SP
 -/--     -:--   -:--   -- -
 -/--     -:--   -:--   -- -
 -/--     -:--   -:--   -- -
 -/--     -:--   -:--   -- -
 -/--     -:--   -:--   -- -
```

To check the timer settings during timer recording

Press MENU and select TIMER SET/CHECK. After checking, press EXECUTE to turn off the display.


Case 1
Program 1 (listed first)
10:00
10:50
Program 2 (listed next)
Will be cleared
11:30
Case 2
Program 1
10:00
10:50
20 seconds will not be recorded
Program 2
11:40
Case 3
Program 1
10:00
11:30
Will be cut off
Program 2
10:45
12:15

When the timer settings overlap

The VCR will not record overlapping programs. If any of your timer settings overlap, change the settings.

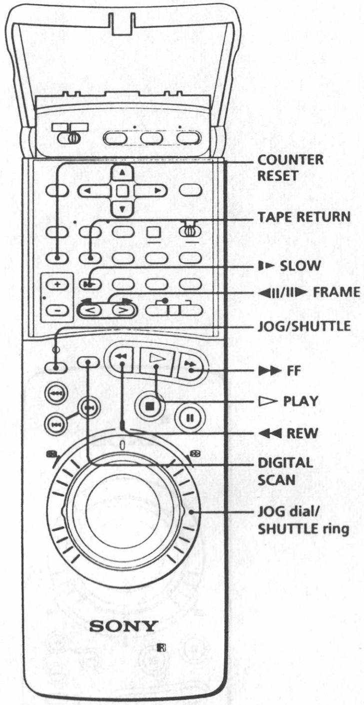
Case 1: If you preset two programs to start recording at the same time...
The program listed first in the TIMER SET/CHECK menu has priority over the other programs. The timer settings of lower priority programs will be erased from the TIMER SET/CHECK menu when the first program begins recording.

Case 2: If you preset program 2 to start recording at the same time you preset program 1 to finish recording...
The last 20 seconds of program 1 will not be recorded because the VCR will enter recording pause for program 2 before program 1 is finished.

Case 3: If you preset program 2 to start recording before program 1 is finished recording...
Program 2 will start recording before program 1 has finished.

Additional Operations

Playing/searching at various speeds

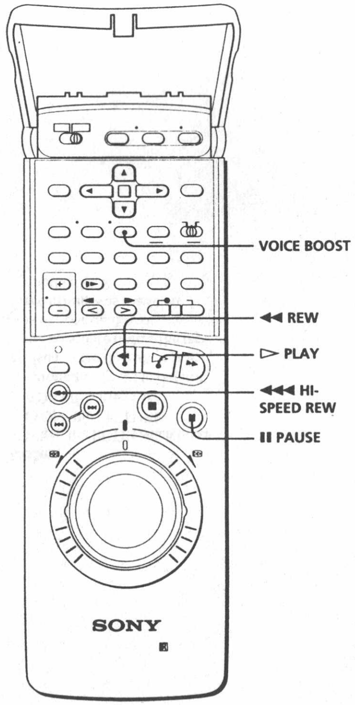

COUNTER RESET
TAPE RETURN
I▶ SLOW
◀II/II▶ FRAME
JOG/SHUTTLE
▶▶ FF
▷ PLAY
◀◀ REW
DIGITAL SCAN
JOG dial/ SHUTTLE ring
SONY

Tip
- You can improve picture quality during playback at various speeds. See "Adjusting the tracking" on page **52**.

Note
- When you are displaying the TIME CODE or remaining tape lengh on the counter display, you can't use the TAPE RETURN button.

You can play back a tape at various speeds: high-speed, slow motion, frame by frame and so on. These options are also useful for searching for a specific point during playback. The sound is muted during these operations.

Playback options	Operation	To resume normal playback
Playing at various speeds:	During playback, press JOG/SHUTTLE and turn the SHUTTLE ring right or left to:	Release the ring and press ▷ PLAY.
Normal speed	1	
One-fifth the normal speed	1/5	
Twice the normal speed	X2	
High speed	▶▶ or ◀◀	
Fast-forwarding/ Rewinding	During stop, press ▶▶ FF or to ◀◀ REW and release.	Press ▷ PLAY.
Viewing the picture during fast-forward or rewind	During fast-forward, press ▶▶ FF. During rewind, press ◀◀ REW.	Press ▷ PLAY.
Locking in a high-speed picture	During fast-forward or rewind, press DIGITAL SCAN. To change direction, press ▶▶ FF (forward) or ◀◀ REW (backward).	Press ▷ PLAY.
Locking in a slow-motion picture	During playback or pause, press I▶ SLOW. To change direction, press ◀II FRAME (backward) or II▶ FRAME (forward).	Press ▷ PLAY.
Playing frame by frame	During pause, press II▶ FRAME to advance the picture one frame or ◀II FRAME to reverse the picture one frame.	Press ▷ PLAY.
Playing in reverse	During playback, press ◀II FRAME.	Press ▷ PLAY.
Replaying a scene	During playback, first press COUNTER RESET when you come to a scene you want to replay later. When you are ready to replay the scene, press ■ STOP. Then press TAPE RETURN and ▷ PLAY in quick succession.	——



Note
- When rewinding at high speed, you will not see the time counter. After the tape is rewound to the beginning, the time counter displays "00H00M00S."

Notes
- If you use VOICE BOOST on any tapes other than those recorded on a video camera, the audio portion of the tape will be difficult to hear.
- The VOICE BOOST function operates in standard hi-fi sound, and doesn't function when using PCM audio sound.

Playback options	Operation	To resume normal playback
Rewinding at high speed	Press ◀◀◀ HI-SPEED REW.	Press ▷ PLAY.
Rewind and restart play automatically	During stop, press ▷ PLAY on the VCR while pressing down ◀◀ REW or ◀◀◀ HI-SPEED REW on the VCR. The AUTO indicator appears in the display window.	—

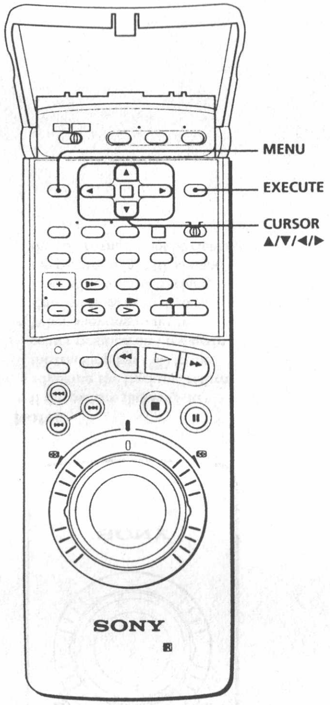
Listening more easily to conversation recorded with a video camera

When you play a tape recorded with a video camera, you can reduce external noises (such as wind and traffic sounds), and amplify the human voice portion of the audio by using the VOICE BOOST function.

1 Press VOICE BOOST on the remote commander.
The VOICE BOOST indicator lights up on the VCR.

2 To listen to a tape in normal audio, press VOICE BOOST again to turn it off.
The VOICE BOOST indicator on the VCR goes out.

Adjusting the picture



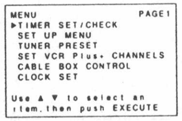
Note
- The video signal is divided into Y (brightness element) and C (color element). The time delay gap between the transmission of these two elements is known as "Y/C delay."

On this VCR you can adjust the hue, color, sharpness, and the Y/C delay. You can adjust the picture to suit your own viewing pleasure during regular tape playback. You can also adjust the tracking for slow-motion forward and reverse, and for two-times speed playback. (See page **52**.)

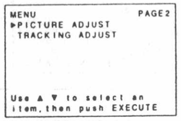
Using this menu option you can make the following picture adjustments:
- HUE and COLOR to adjust skin color and color tone and depth etc.
- SHARPNESS to obtain a clearer more precise picture.
- Y/C DELAY to adjust color on the right or left portions of the picture.

Example of SHARPNESS adjustment

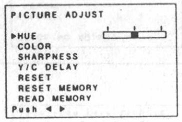
1 Press MENU.


```
MENU                    PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item, then push EXECUTE
```

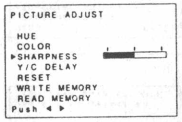
2 Press CURSOR ▲/▼ to move the cursor (▶) to PICTURE ADJUST.


```
MENU                    PAGE2
▶PICTURE ADJUST
 TRACKING ADJUST



Use ▲ ▼ to select an
item, then push EXECUTE
```

3 Press EXECUTE.
The PICTURE ADJUST options appear.

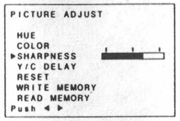

```
PICTURE ADJUST

▶HUE
 COLOR
 SHARPNESS
 Y/C DELAY
 RESET
 RESET MEMORY
 READ MEMORY
Push ◀ ▶
```

4 Press CURSOR ▲/▼ to move the cursor (▶) to SHARPNESS.

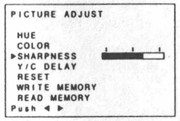

```
PICTURE ADJUST

 HUE
 COLOR
▶SHARPNESS
 Y/C DELAY
 RESET
 WRITE MEMORY
 READ MEMORY
Push ◀ ▶
```

Notes
- When the EDIT switch is set to ON, the PICTURE ADJUST settings are automatically set to default.
- Usually the default setting are adequate unless the tape is of poor quality or recording was made on another VCR.

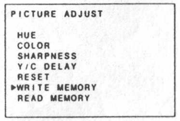
5 Press CURSOR ◀/▶ to move the tracking bar (■) to adjust the sharpness.


PICTURE ADJUST
HUE
COLOR
▶SHARPNESS
Y/C DELAY
RESET
WRITE MEMORY
READ MEMORY
Push ◀ ▶

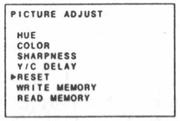
6 Press EXECUTE.
The new sharpness adjustment appears on the screen.


PICTURE ADJUST
HUE
COLOR
▶SHARPNESS
Y/C DELAY
RESET
WRITE MEMORY
READ MEMORY
Push ◀ ▶

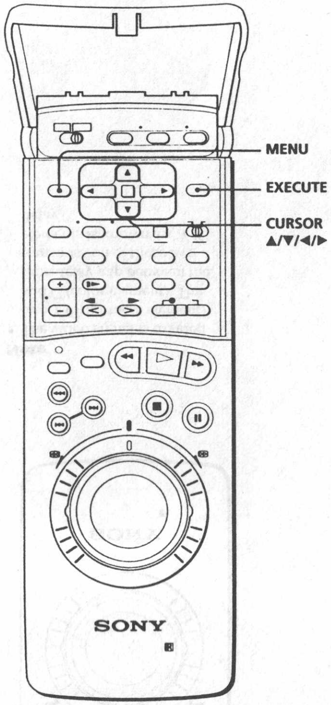
7 To store your settings in memory, follows steps 1 to 3, then make your settings, then do the following:
1 Press CURSOR ▲/▼ to move the cursor (▶) to WRITE MEMORY.
2 Press EXECUTE to enter the settings.


PICTURE ADJUST
HUE
COLOR
SHARPNESS
Y/C DELAY
RESET
▶WRITE MEMORY
READ MEMORY

To recall your stored setting, press READ MEMORY.
When you want to change settings, press CURSOR ▲/▼ to move the cursor (▶) to RESET, then press EXECUTE to delete the current settings. These are automatically reset to the default settings as adjusted at the factory at the time of shipment.


PICTURE ADJUST
HUE
COLOR
SHARPNESS
Y/C DELAY
▶RESET
WRITE MEMORY
READ MEMORY

Adjusting the picture
(continued)



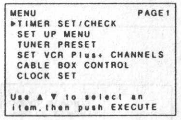
Notes
- If the picture flickers when adjusting the tracking, return the tracking bar (■) to the center position and try again.
- When viewing in reverse slow motion, even if you have adjusted the tracking, the picture might flicker and the colors might not be clear.

The VCR automatically adjusts the picture for the best possible playback or recording. If, however you find the automatic adjustment unsatisfactory, you can adjust the picture manually.

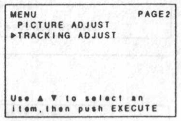
Adjusting the tracking

Though the VCR automatically adjusts the tracking when playing a tape, distortion may occur if the tape was recorded in poor condition. If so, manually adjust the tracking condition during SLOW, – SLOW, or X2 playback. The tracking can only be adjusted automatically during normal playback.

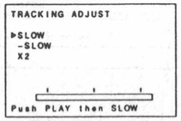
1 Press MENU.


MENU PAGE1
▶TIMER SET/CHECK
SET UP MENU
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
Use ▲ ▼ to select an item, then push EXECUTE

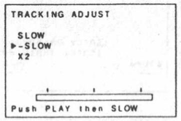
2 Press CURSOR ▲/▼/◀/▶ to move the cursor (▶) to TRACKING ADJUST.


MENU PAGE2
PICTURE ADJUST
▶TRACKING ADJUST
Use ▲ ▼ to select an item, then push EXECUTE

3 Press EXECUTE.

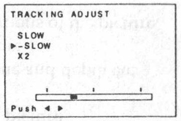

TRACKING ADJUST
▶SLOW
-SLOW
X2
Push PLAY then SLOW

4 Press CURSOR ▲/▼/◀/▶ to move the cursor (▶) to the tracking adjustment position you wish to select (SLOW, – SLOW, X2).


TRACKING ADJUST
SLOW
▶-SLOW
X2
Push PLAY then SLOW

- To adjust tracking when in forward slow motion, select SLOW.
- To adjust tracking when in reverse slow motion, select – SLOW.
- To adjust tracking when in X2 (two-times speed), select X2.

5 Press CURSOR ▲/▼/◀/▶ to move the tracking bar (■) to adjust the tracking for the mode you are in.


TRACKING ADJUST
SLOW
▶-SLOW
X2
Push ◀ ▶

6 Press EXECUTE.

Notes
- When changing the DNR setting, it takes approximately 3 seconds for the new setting to show on the TV screen.
- If TBC is set to OFF in the SET UP MENU, you cannot use the DNR function.

Reducing picture noise

When you play a tape that is in poor condition you can improve the playback quality by using the DNR (Digital Noise Reduction) function.

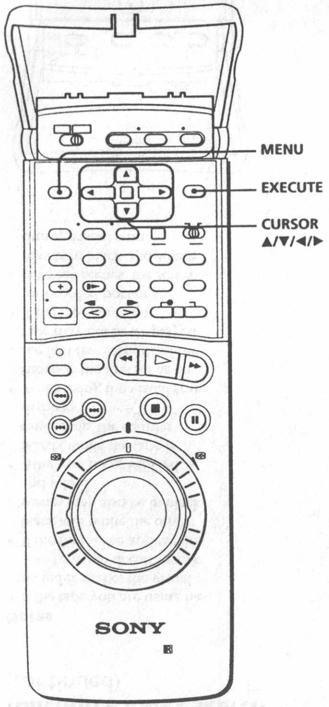
To change DNR settings

Press DNR to select the desired setting:

When	DNR level	DNR indicator in the operation panel display	The TV screen shows
In normal playback (usually at this setting)	NORMAL	Lights up	"DNR STD"
You want to reduce noise as much as possible	MAXIMUM	Lights up	"DNR MAX"
You want a clear picture outline even with the existing noise	OFF	No indication	"DNR OFF"

Searching using the index function – index search

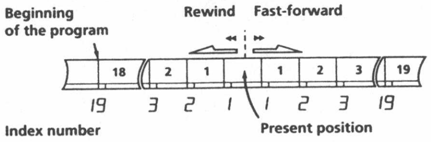
Notes
- You can't mark an index signal when you start recording from recording pause. However, while in recording pause, you can mark an index signal if the channel is changed.
- Leave an interval of at least 2 minutes for SP mode, and at least 4 minutes for LP mode, between indices so that the VCR can detect the signals correctly.
- An index signals is a 10-second preview, and the last scene of this 10-second interval remains displayed on the TV screen after the preview.



An index signal is automatically recorded at the beginning of a scene when you start recording. You can find specific scenes easily using the marks (index points). There two kinds of index searches you can make, "normal" and "date." You can use the "date" index for read only.

How the index function works

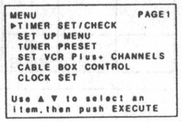
The index works as a divider between scenes, and is not numbered. So, when you specify the index mark later, you have to specify the relative position from the current position.



Locating an index by number – "normal" INDEX SEARCH

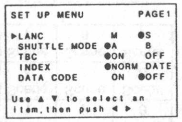
Locate an index by indicating how many index signals ahead or behind the scene is from the tape's current position. You can specify up to 19 index points either ahead or behind the current position. See "Using the SET UP menu" on page **32** to set the INDEX menu option.

1 **Insert an indexed tape into the VCR, then press MENU.**



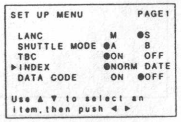
```
MENU                     PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

2 **Press CURSOR ▲/▼/◀/▶ to move the cursor (▶) to SET UP MENU, then press EXECUTE.**

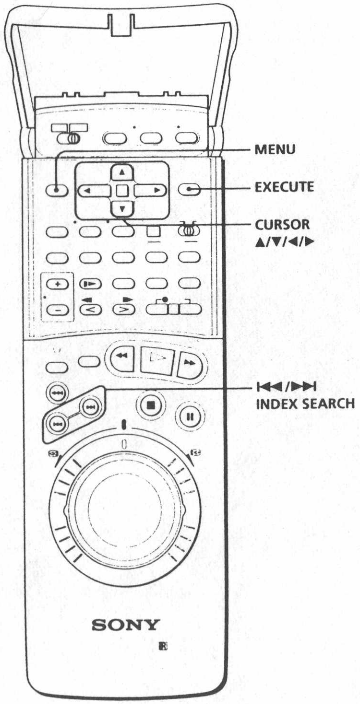


```
SET UP MENU              PAGE1

▶LANC              M    ●S
 SHUTTLE MODE ●A        B
 TBC          ●ON      OFF
 INDEX        ●NORM   DATE
 DATA CODE     ON     ●OFF

Use ▲ ▼ to select an
item,then push ◀ ▶
```

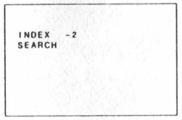
3 **Press CURSOR ▲/▼/◀/▶ to move the cursor (▶) to INDEX, then select NORM.**



```
SET UP MENU              PAGE1

 LANC              M    ●S
 SHUTTLE MODE ●A        B
 TBC          ●ON      OFF
▶INDEX        ●NORM   DATE
 DATA CODE     ON     ●OFF

Use ▲ ▼ to select an
item,then push ◀ ▶
```



4 **Press I◀◀/▶▶I INDEX SEARCH repeatedly until the index number you want appears on the TV screen:**



```
INDEX  -2
SEARCH
```

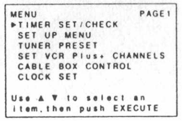
- To locate succeeding programs, press ▶▶I INDEX SEARCH.
- To locate preceding programs, press I◀◀ INDEX SEARCH.

The VCR starts searching and the index number on the TV screen counts down to zero in numerical order. Playback starts automatically from that point.

Locating an index by date – "date" INDEX SEARCH

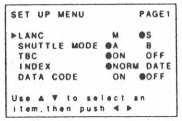
You can locate a desired scene by date if the tape you are using was recorded on by a video camera that has a date code function. You can call up to 19 index points by searching for DATA CODE signals. See "Using the SET UP menu" on page **32** to set the INDEX menu option.

1 **Insert an indexed tape into the VCR, then press MENU.**



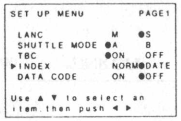
```
MENU                       PAGE1
▶TIMER SET/CHECK
 SET UP MENU
 TUNER PRESET
 SET VCR Plus+ CHANNELS
 CABLE BOX CONTROL
 CLOCK SET

Use ▲ ▼ to select an
item,then push EXECUTE
```

2 **Press CURSOR ▲/▼/◀/▶ to move the cursor (▶) to SET UP MENU, then press EXECUTE.**



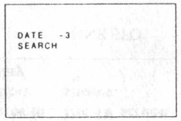
```
SET UP MENU                PAGE1

▶LANC               M    ●S
 SHUTTLE MODE ●A         B
 TBC          ●ON        OFF
 INDEX        ●NORM  DATE
 DATA CODE     ON    ●OFF

Use ▲ ▼ to select an
item,then push ◀ ▶
```

3 **Press CURSOR ▲/▼/◀/▶ to move the cursor (▶) to INDEX, then select DATE.**



```
SET UP MENU                PAGE1

 LANC               M    ●S
 SHUTTLE MODE ●A         B
 TBC          ●ON        OFF
▶INDEX         NORM●DATE
 DATA CODE     ON    ●OFF

Use ▲ ▼ to select an
item,then push ◀ ▶
```

4 **Press I◀◀/▶▶I INDEX SEARCH repeatedly until the index number you want appears on the TV screen:**



```
DATE  -3
SEARCH
```

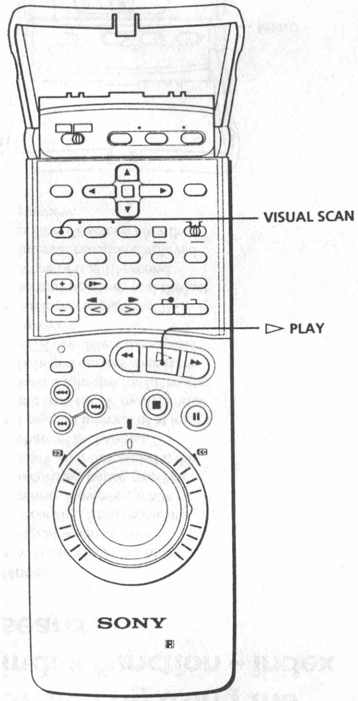
- To locate succeeding programs, press ▶▶I INDEX SEARCH.
- To locate preceding programs, press I◀◀ INDEX SEARCH.

The VCR starts searching and the index number on the TV screen counts down to zero in the order in which the indices were dated. Playback starts automatically from that point.

Searching using the index function – index search (continued)

Notes

- If the tape you are using has no index marks the visual scan function doesn't work.
- If the first scene appears in black and white the other scenes may also be in black and white.
- After you press VISUAL SCAN while the tape is rewinding, the counter displays "-:--:--".
- When using the visual scan function the first scene on the first few seconds of the tape may not be displayed.
- If the tape contains unrecorded portions between scenes, the screen may turn black-and-white during visual scan.

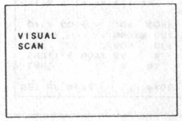


Locating up to 9 index points visually – VISUAL SCAN

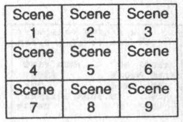
Using the visual scan function you can find and play a program you've marked with an index signal. You can view up to 9 different scenes on the TV screen at the same time. Either numbered or dated indexed scenes can be viewed. When you want to find a scene but don't know the exact location you can find it by using this function. You can view up to 9 scenes on the TV screen to search for the desired scene.

1 **Press VISUAL SCAN while in stop mode.**

The tape rewinds automatically. When the tape is rewound to the beginning it then fast-forwards to the first index signal. The first 1 scene appears on the TV screen. The VCR then fast-forwards to the next index signal. After 9 scenes are displayed on the TV screen the VCR stops searching for index signals.



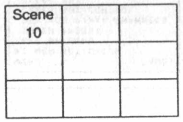
```
VISUAL
SCAN
```



Scene 1	Scene 2	Scene 3
Scene 4	Scene 5	Scene 6
Scene 7	Scene 8	Scene 9

2 **Press VISUAL SCAN again to view the next (10th) index signal in the 1 position.**

3 **When you see the scene you want to view, press ▷ PLAY.**

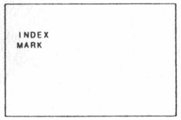


Scene 10		

Notes
- When you mark an index signal, the recorded sound may be interrupted and a black bar appears on at the bottom of the TV screen, but the tape will not be damaged.
- Leave an interval between indices of at least 2 minutes for SP mode, and at least 4 minutes for LP mode, so that the VCR can detect the signals correctly.
- If you mark or erase an index signal on a tape that has been marked with date codes, the date codes may be erased.
- You can't mark or erase index signals on cassettes that have their safety tab in the red position.

Marking index signals

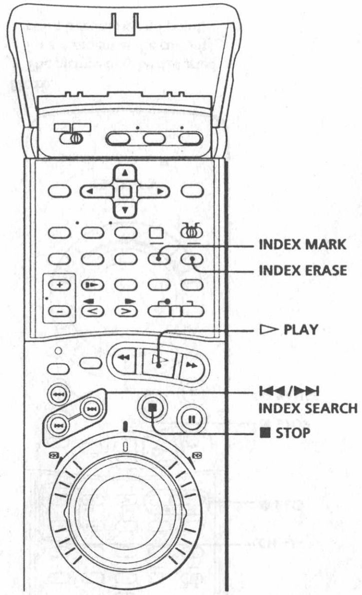
You can mark and index anywhere on a tape, so that you can easily find the specific point later on. Press INDEX MARK while in recording or playback mode.



This VCR cannot mark a "date" index.

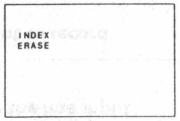
Erasing index signals

You can remove any unwanted "normal" index signals using this function. However, you can't erase "date" index signals.



1 **Press I◀◀/▶▶I INDEX SEARCH while in stop or playback mode.**
The VCR rewinds or fast-forwards the tape automatically, and playback starts when the index number indicated on the TV screen reaches "0."

2 **Press INDEX ERASE during the 10-second preview for the index you want to erase. To stop erasing index signals, press ▷ PLAY or ■ STOP.**



Note
- You can't erase index signals that occur at the beginning of the tape, or those on tapes marked by a video camera or other VCR.

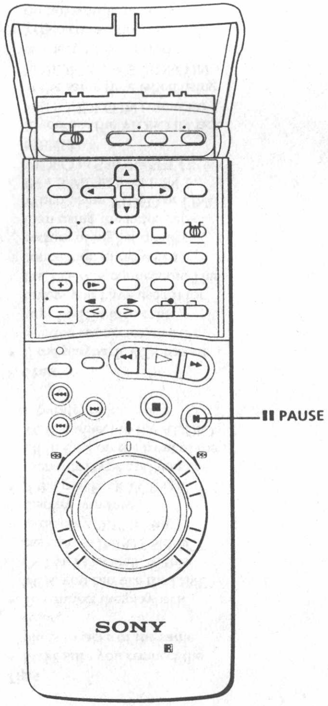
Shuttle editing

This section shows you how to edit VCR recordings in the most basic way: shuttle editing. The VCR also provides the following ways of editing:
- Editing to or from another VCR or camcorder—"Editing with another VCR" (page **60**).
- Editing via the LANC ⮌ or CONTROL S jacks of two VCRs—"Synchronized editing" (page **62**).
- Taking events from one tape and assembling them onto another tape in any order—"Assemble editing" (page **66**).
- Adding music or narration on the PCM track—"Audio dubbing" (page **70**).

Note
- During shuttle editing, use the JOG dial/SHUTTLE ring on the VCR, not on the remote commander.

During recording

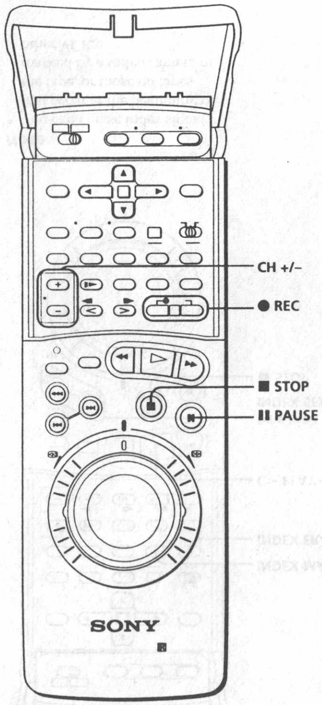
If you want to cut out events such as TV commercials, you can pause recording and play back the tape in the reverse direction until the beginning of an unwanted event is reached. Then, record over it. This feature only works from the VCR. During timer recording, you can't use this function.



1 **Press II PAUSE during recording.**
The VCR enters recording pause mode.

2 **Turn the JOG dial/SHUTTLE ring on the VCR counter-clockwise to rewind the tape until the unwanted event appears.**
If you turn the JOG dial/SHUTTLE ring, you can select the playback speed by how fast you turn it, and if you turn it.
When you release the dial or ring, the VCR enters recording pause mode.

3 **Press II PAUSE when a desired event appears on the screen.**
Recording starts.



Note
- The picture may be distorted for a moment at the cut-out point (recording end point).

During playback

You can re-record onto an unwanted portion of a pre-recorded tape. Use the JOG dial/SHUTTLE ring on the VCR.

1 **When an unwanted event appears during playback, press II PAUSE.**
The VCR enters the playback pause mode.

2 **Turn the JOG dial/SHUTTLE ring on the VCR until the beginning of the unwanted event appears on the screen.**
Turn the JOG dial/SHUTTLE ring to the desired playback speed. When you release the dial or ring, the VCR enters playback pause mode.

3 **Press ● REC on the VCR or the remote commander.**
The VCR enters recording pause mode.

4 **Select a new program for re-recording. Press CH +/– on the remote commander or CHANNEL +/– on the VCR.**
If you have made the connection using the line input jacks, press INPUT SELECT.

5 **Press II PAUSE when the event you want to record appears on the screen.**
Recording begins.

To stop recording
Press ■ STOP.

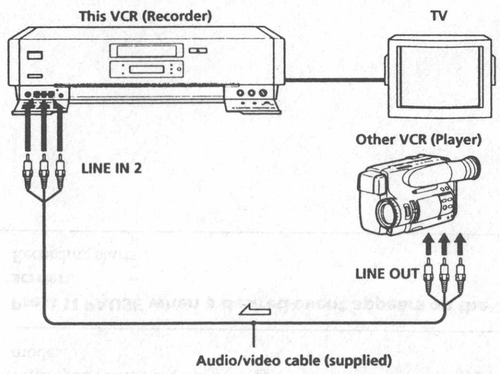
Editing with another VCR

This section shows you how to edit to or from another VCR or camcorder. You can make a copy of a tape using this VCR for recording or playback.

Tips
- Make sure you connect the plugs to jacks of the same color.
- To connect the playback VCR, you can use the LINE IN 1 jacks as well. In this case, press INPUT SELECT to display "L1" in the display window.
- If the playback VCR is a monaural type and you use LINE IN 2 on the front of the VCR, connect to the AUDIO L (white) jack.

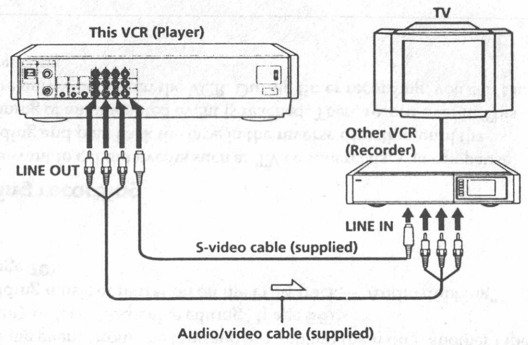
Notes
- If the playback VCR has an S-video connector, use the supplied S-video cable unless you have used it for the TV-VCR connection. This connection gives you a picture of higher quality than using the video cable. When using VIDEO or LINE IN 1 S VIDEO, set L IN 1 VIDEO to S in the SET UP MENU.
  If you use the VIDEO IN jack and S VIDEO IN connector at the same time when using LINE IN 2, the S VIDEO IN connector takes priority.
- When connecting the VCRs, do not simultaneously connect the LINE IN and LINE OUT jacks on your VCR. A humming noise may occur if you do this.
- When using this VCR for playback, press EDIT on the VCR, or the on-screen information will appear on the TV screen.

How to hook up to record on this VCR

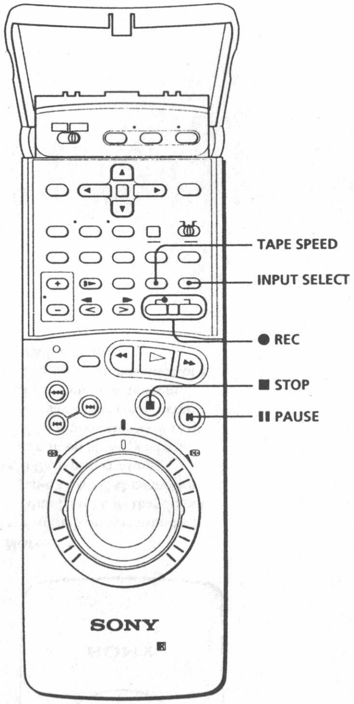


⇐ :Signal flow

How to hook up to record to another VCR



⇐ :Signal flow


TAPE SPEED
INPUT SELECT
● REC
■ STOP
II PAUSE
SONY

Note
- Make sure that the safety tab is in the correct position. If the playback VCR is a VHS model, make sure that the safety tab on the source tape has been removed.

Tips
- To make your editing more precise, release the VCRs from pause by pressing II PAUSE buttons on the VCRs, not on the remote commander.
- To cut out unwanted events while editing, press II PAUSE on this VCR when an unwanted event begins. When it ends, press II PAUSE again to resume recording (assemble editing).

Operation (when recording on this VCR)

Before you start editing
- Press INPUT SELECT to display "L2" in the display window.
- Press TAPE SPEED to select the recording tape speed (SP/LP).
- If the other (playback) VCR has an EDIT function, set it to ON.

1 Insert a source tape into the playback VCR. Search for the point to start playback and set the VCR to playback pause.

2 Insert a tape into this (recording) VCR. Search for the point to start recording and press II PAUSE.

3 Press ● REC on this VCR and set it to recording pause.

4 To start editing, press the II PAUSE buttons on both VCRs to release the VCRs from pause.
For best results, press the pause button on the playback VCR just before pressing II PAUSE on this VCR.

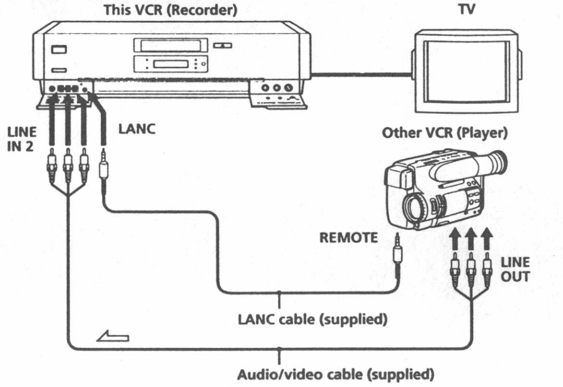
To stop editing
Press the ■ STOP buttons on both VCRs.

Synchronized editing

Notes
- If the playback VCR is a monaural type and you use LINE IN 2 on the front of the VCR, connect to the AUDIO L (white) jack.
- When connecting the VCRs, do not connect both LINE IN and LINE OUT jacks on your VCRs simultaneously. Doing so may cause a humming noise.
- If the playback VCR has an S-video connector, use the supplied S-video cable. This connection gives you a picture of higher quality than using the video cable. When using VIDEO or LINE IN 1 S VIDEO, set L IN 1 VIDEO to S in the SET UP MENU.
  If you use the VIDEO IN jack and S VIDEO IN connector at the same time when using LINE IN 2, the S VIDEO IN connector takes priority.
- You cannot set the LANC mode to M for the playback VCR. Set the LANC mode to M for this VCR to make it control the playback VCR.
- Do not use the same LANC mode setting for both VCRs, as this may cause a malfunction.
- When using this VCR for playback, press EDIT on the VCR, or the on-screen information will appear on the TV screen.

If the playback VCR has a LANC ⏻ or CONTROL S jack, connect the VCRs via the LANC ⏻ or CONTROL S jacks. This additional connection lets you control both VCRs from one VCR for easier editing.

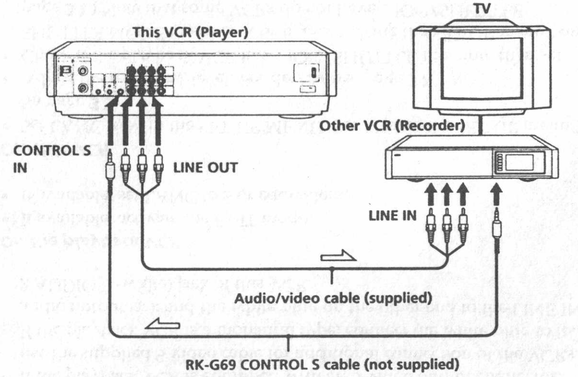
How to hook up via the LANC ⏻ jacks


This VCR (Recorder)
TV
LINE IN 2
LANC
Other VCR (Player)
REMOTE
LINE OUT
LANC cable (supplied)
Audio/video cable (supplied)

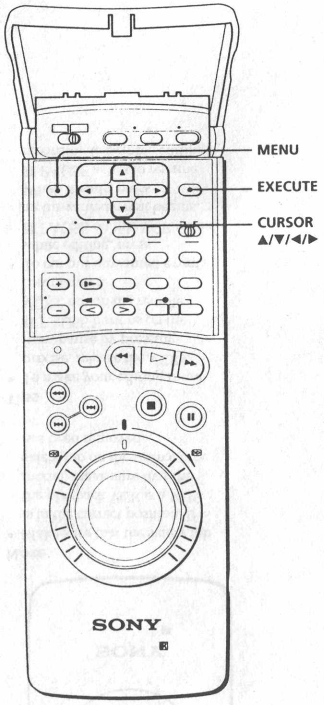
⇨ :Signal flow

How to hook up via the CONTROL S jacks

The CONTROL S connection only enables you to pause and release pause. Use the LANC ⏻ jack if the recording VCR has both LANC ⏻ and CONTROL S jacks.


TV
This VCR (Player)
Other VCR (Recorder)
CONTROL S IN
LINE OUT
LINE IN
Audio/video cable (supplied)
RK-G69 CONTROL S cable (not supplied)

⇨ :Signal flow

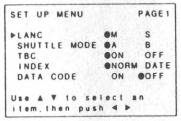


Notes
- You can't do synchronized editing on VCRs that do not have a LANC ⏻ connector.
- If the tape recording condition of the playback VCR is poor, this VCR may display a blue color on the TV screen for a moment. This is not an indication of a malfunction.

Setting the LANC mode

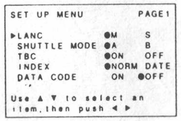
The LANC mode setting determines which VCR controls which. Here's how to control the playback VCR from this VCR.

1 **Press MENU and select SET UP MENU.**



```
SET UP MENU              PAGE1

▶LANC           ●M     S
 SHUTTLE MODE   ●A     B
 TBC            ●ON    OFF
 INDEX          ●NORM  DATE
 DATA CODE       ON   ●OFF

Use ▲ ▼ to select an
item, then push ◀ ▶
```

2 **Set LANC to M by pressing CURSOR ▲/▼/◀/▶.**
On the playback VCR, set the LANC mode to S and the SHUTTLE MODE to either A or B, depending on the type of playback VCR you are using. See "Using the SET UP menu" on page **32**.



```
SET UP MENU              PAGE1

▶LANC           ●M     S
 SHUTTLE MODE   ●A     B
 TBC            ●ON    OFF
 INDEX          ●NORM  DATE
 DATA CODE       ON   ●OFF

Use ▲ ▼ to select an
item, then push ◀ ▶
```

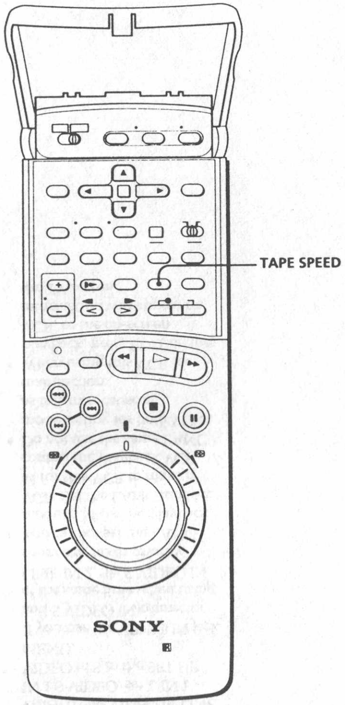
3 **Press EXECUTE to store the setting.**

To control this VCR from the playback VCR
Set LANC to S on this VCR and to M on the playback VCR.

About LANC ⏻

LANC stands for Local Application Control System. The LANC ⏻ connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as connectors indicated as CONTROL L or REMOTE.

Synchronized editing
(continued)



Operation (when recording on this VCR)

Before you start editing
- Make connections according to the illustration on page **62**.
- If the playback VCR is equipped with an S-video output connector, use the supplied S-video cable for additional connection of the VCRs.
- If the playback VCR is a monaural type, connect the white plug to its audio output jack and the white plug on the other end to the LINE IN 2 AUDIO L (white) jack of this VCR.

On the playback VCR
- If available, activate the EDIT mode.
- If available, set LANC to S or equivalent.

On this VCR
- Set LANC to M in the SET UP MENU. See "Using the SET UP menu" on page **32**.
- Adjust the recording level. For details, see page **37**.
- Check if the playback VCR has a JOG/SHUTTLE function, then set SHUTTLE MODE to either A or B. (See "Using the SET UP menu" on page **32**.) Note that some VCRs do not have a JOG/SHUTTLE function.
- Select the tape speed, SP or LP, using the TAPE SPEED button.

1 **Insert a source tape into the playback VCR. Insert a tape for recording into this VCR.**

2 **Press EDIT STANDBY on this VCR so that the EDIT STANDBY indicator lights up on the operation panel.**
This VCR enters recording pause and the playback VCR enters pause.

3 **Press LANC REMOTE on the VCR so that the LANC REMOTE indicator lights up on the operation panel. Then turn the JOG dial/SHUTTLE ring to locate the start point on the playback VCR.**
You can also use the tape transport buttons on this VCR.

4 **Release the JOG dial/SHUTTLE ring when you have found the desired point.**
The playback VCR enters playback pause. If you have used any of the tape transport buttons, set the playback VCR to playback pause.

5 **Press LANC REMOTE on the VCR so that the indicator goes off. Then turn the JOG dial/SHUTTLE ring to locate the insertion start point on this VCR's tape.**

6 **Press SYNCHRO EDIT/START.**
Synchronized editing starts.

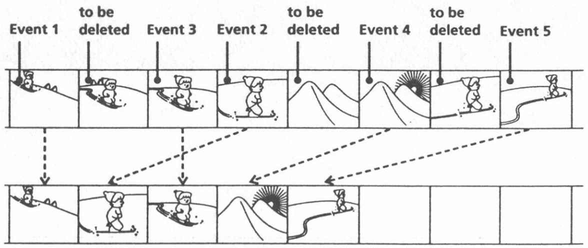
7 **When you have finished your editing session, press SYNCHRO EDIT/START.**
Both VCRs enter recording pause.

8 **To edit more scenes, repeat steps 3 to 7.**

9 **When you have finished your editing session, press EDIT STANDBY.**
Both VCRs stop.

Assemble editing

With this function you can take events from one tape and assemble edit them onto another tape.
You can insert as many events onto to the new tape that you require.
Using the assemble editing function, you can assemble edit up to eight different events at a time.



Tips
- If the playback VCR you're using does not have the TIME CODE WRITE function but only a real-time counter, precise editing cannot be guaranteed.
- For the TIME CODE WRITE function to work correctly, you must enter the time code on the entire portion of the tape you want to edit.
- When using the TIME CODE WRITE function, you can easily search for a desired event as each frame is given a readable code signal.

Notes
- The TIME CODE WRITE function on this VCR and that on professional-level VCRs are not compatible.
- If you press another button while writing the time code, writing stops automatically.
- If you use a tape that has been recorded in both SP and LP tape speeds, the TIME CODE WRITE function may not work properly.
- If you connect to a video camera that shows streaks or snow when freezing the picture, the text on the screen may be difficult to read. Make your editing decisions visually to ensure that the events you want to edit are precisely aligned.
- When using the TIME CODE WRITE function, a black band may appear at the bottom of the screen. This is not an indication of a malfunction. This black band will not appear on the events you are going to edit.

Using the TIME CODE WRITE function on a playback tape

When you connect this VCR to a VCR that features the TIME CODE WRITE function, you can use this function for assemble editing. This function allows you to perform more precise editing. It inserts frame position signals on the tape, and thus indexes (by numbers) the portions to be edited. However, if there are unrecorded segments on the portion that you want to edit, precise editing can't be guaranteed. In this case you must enter the time codes onto the playback tape in the other VCR.

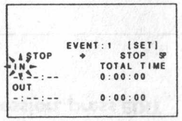
1 Rewind the playback tape to the beginning.
2 Press ▷ PLAY, then press ❚❚ PAUSE.
3 Press TIME CODE WRITE on the VCR.
4 Press ❚❚ PAUSE to start playback.
Time code information is automatically written onto the tape.
5 Press ■ STOP at the end point of the portion that you want to edit.
Time code insertion stops.

Operation (when recording on this VCR)

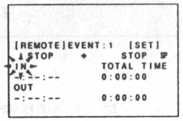
Notes
- When you use LANC REMOTE, you can control tape operation on the playback VCR.
- Set the SHUTTLE MODE option on the playback VCR to either A or B to match the setting on this VCR. See "Using the SET UP menu" on page **32**.
- Make sure that the cassette you insert into this VCR has its tab set to REC.
- The ASSEMBLE button is only operable in stop mode.

Before you start editing
- Connect this VCR to the playback VCR using the same connections as illustrated in the section "Synchronized editing" on page **62**. (Be sure to read the operating instructions for the playback VCR before making connections.)
- Set the TV to video input.
- Press INPUT SELECT to select the line input that the playback VCR is connected to.
- If the playback VCR has a TIME CODE function, activate it to display the time code in the display window counter.
- On the playback VCR, set the SHUTTLE MODE to either A or B (see page **32**).

1 **Press ASSEMBLE on this VCR.**
The assemble editing menu appears on the TV.

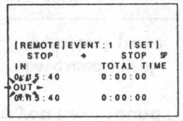

EVENT : 1 [SET]
STOP ◆ STOP SP
IN
TOTAL TIME
-:--:--
0:00:00
OUT
-:--:--
0:00:00

2 **Press LANC REMOTE on this VCR.**
"REMOTE" appears on the TV screen, and the REMOTE indicator lights up on the operation panel. You can now control the other VCR's tape transport buttons from this VCR.


[REMOTE] EVENT : 1 [SET]
STOP ◆ STOP SP
IN
TOTAL TIME
-:--:--
0:00:00
OUT
-:--:--
0:00:00

3 **Find the first frame of the event you want to assemble edit.**
Using this VCR to operate the playback VCR to find the event you want to edit, then proceed to step **4**.

4 **Press MARK on the VCR to mark the "IN" frame for the event you are assemble editing.**


[REMOTE] EVENT : 1 [SET]
STOP ◆ STOP SP
IN
TOTAL TIME
0:15:40
0:00:00
OUT
0:15:40
0:00:00

(continued)

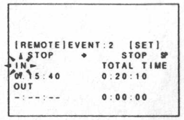
Assemble editing (continued)

Tip
- The TOTAL TIME figure gives the total time for all the events. The tape speed of the recording tape must match that of the events to be entered, or the events will not be recorded properly.

Notes
- Leave a space of about two seconds between the IN frame and OUT frame, or the events cannot be marked correctly.
- When you want to stop assemble editing, press ASSEMBLE again.
- When the TIME CODE is less than 0:01:00:00, the editing will not be very precise. In this case, do the editing manually as described in the "Synchronized editing" section on page **62**.

5 **Find the last scene of the event you want to assemble edit.**
Once the end of the first event has been found, go to step **6**.

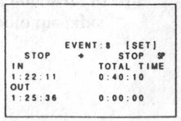
6 **Press MARK on the VCR to mark the "OUT" frame.**
"IN" flashes, and the total time of the event you have selected is displayed. After a couple of seconds, the VCR is ready for setting the next event.


[REMOTE] EVENT : 2 [SET]
STOP ◆ STOP SP
IN
TOTAL TIME
0:15:40
0:20:10
OUT
-:--:--
0:00:00

7 **Repeat steps 3 to 6 to select another event for editing.**
Up to 8 events can be selected for assemble editing.

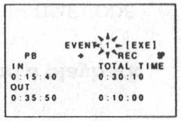
8 **When you have finished selecting your events, press ■ STOP.**

9 **Press LANC REMOTE when you are finished designating the required events.**
The REMOTE indicator no longer appears. The playback VCR can no longer be controlled by this VCR.


EVENT : 8 [SET]
STOP ◆ STOP SP
IN
TOTAL TIME
1:22:11
0:40:10
OUT
1:25:36
0:00:00

10 **Find the recording start point using this VCR.**
When the start point has been found, press **II** PAUSE and then ● REC.

11 **Press SYNCHRO EDIT/START.**
"EXE" appears on the TV screen, and assemble editing starts. When editing is completed, the VCR enters the recording pause mode.


EVENT 1 [EXE]
PB ◆ REC SP
IN
TOTAL TIME
0:15:40
0:30:10
OUT
0:35:50
0:10:00

12 **When you have finished your editing session, press ASSEMBLE.**

Tip

- For the purpose of protecting the tape, when you are in recording pause mode, after 5 minutes the VCR automatically enters the stop mode.

Notes

- When you press BACK, the VCR returns to the last frame of the event you have selected. Press BACK again to return to the first frame of the event.
  If you haven't designated an end frame, the tape records through to the end.
- If you press II PAUSE during assemble editing, the event you are editing is set. If you have another event, the next event is also automatically edited.
- During fast-forwarding or rewinding, if the TIME CODE indicator on the playback VCR should show "-:-:-", the assemble editing function may not work. In this case, please use the synchronized editing function instead.

To assemble edit more than 8 events
Repeat the above described procedure to assemble edit the additionally required number of events.

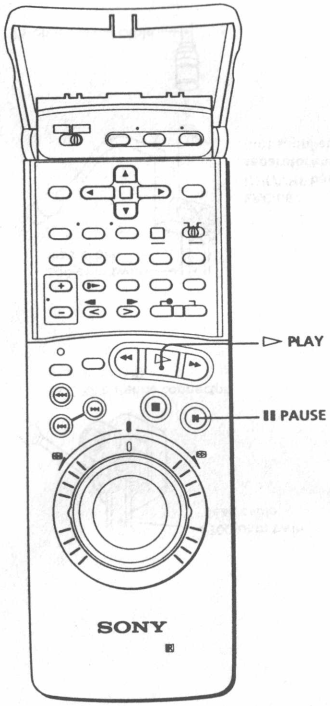
1. After you've finished one assemble editing session, press ASSEMBLE. The assemble editing mode is cancelled. The contents stored in memory are deleted.
2. When the VCR enters recording pause mode, press ■ STOP.
3. Repeat from step **1** on page **67**.

To change the settings stored in memory
Press BACK on the VCR.
Only the last event you have entered for assemble editing can be changed. If you press BACK twice in a row, the event entered last is deleted.

To check the settings stored in memory
Press ■ STOP. To cycle through the designated events, press BACK.

To stop assemble editing temporarily
Press SYNCHRO EDIT/START. When you wish to resume assemble editing, editing starts from the first event.

Audio dubbing

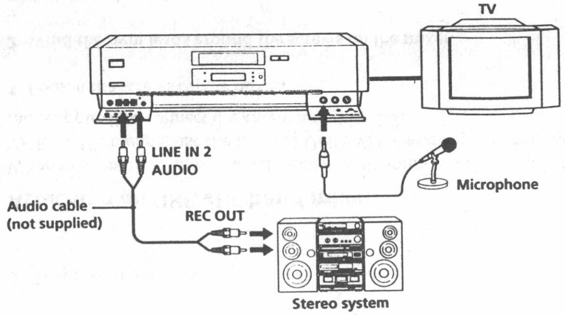


Notes

- You must be in playback pause mode before pressing AUDIO DUB. (If you are in recording pause mode, you cannot use the audio dubbing features.)
- Audio dubbing cannot be done if the safety tab on the cassette is slid to the show the red portion.

You can add music or narration on a pre-recorded tape while watching the VCR playback picture. Audio-dubbed sound is recorded on the PCM track. (See page **36**.)

How to hook up



Operation

Before you start editing

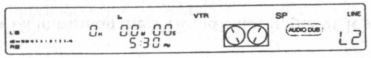
- Press INPUT SELECT to display "L2" in the display window.
- Set the AUDIO MONITOR selector to PCM.

1 **Set the PCM REC LEVEL control to the desired setting.**
This allows you to balance the sound level of the sound to be dubbed against that of the standard track.

2 **Press ▷ PLAY.**

3 **Find the start point of the tape portion that you want to dub new sound onto, and press II PAUSE.**

4 **Press AUDIO DUB.**
The AUDIO DUB indicator lights up in the display window.



5 **Press ❚❚ PAUSE when you start the playback source, or want to start adding narration using a microphone.**

6 **When you have finished your audio dubbing session, press ■ STOP on this VCR.**

To listen to the sound on both the PCM and the standard track

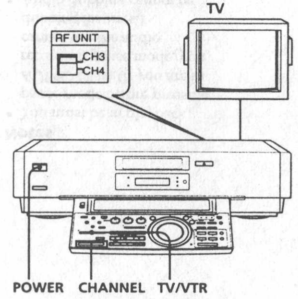
Set the AUDIO MONITOR switch on the operation panel to MIX. If the sound is hard to distinguish, use the STD AUDIO LEVEL to adjust the standard sound level. You cannot adjust the PCM sound level.

Tips
- See "How sound is recorded on a video tape" on page **36**.
- For fade-in operation, adjust the PCM REC LEVEL control from the zero point to the normal position.
  For fade-out operation, turn it from the normal position to the zero point.
- The sound from the LINE IN AUDIO 1 or 2 jacks and the MIC jack on the front panel can be mixed.

Notes
- The dubbed sound cannot be played back by a VCR without PCM recording or playback functions.
- Dubbing erases the pre-recorded sound on the PCM track.
- During dubbing, black bars may appear in the lower parts of the screen. This does not affect the recorded images.
  The picture may shake or colors may fade on certain TVs.
- Sound from a microphone is recorded in monaural.
- When the microphone is not is use, do not connect the microphone to the MIC jack, or the sound will be mixed with the sound from LINE IN AUDIO 1 or 2.
- If you dub new sound onto a tape that contains DATA CODE information, this information is erased.

Additional Information

General setup information



Setting the RF unit

When connecting the VCR to the TV using only the antenna, you must set the RF UNIT switch on the rear of the VCR so that the TV can receive the correct signal from the VCR.
If you connect the VCR to the TV using the supplied audio/video cable, you can skip this step.

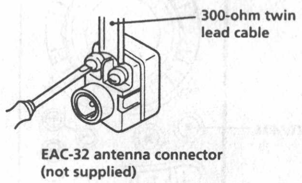
1 Set the RF UNIT switch on the rear of the VCR to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel.

2 Press POWER to turn on the VCR.

3 Press TV/VTR to turn on the VTR indicator in the VCR's display window.

4 Press CHANNEL +/– to display a channel number in the display window. Select an active channel number in your area.

5 Turn on your TV and set it to the channel you selected in step **1** (channel 3 or 4).
The selected TV channel broadcast appears on the TV screen. If the channels change when you press CHANNEL +/–, you have made the correct setting.
Whenever you use the VCR, set the TV to the channel selected in step **1**.



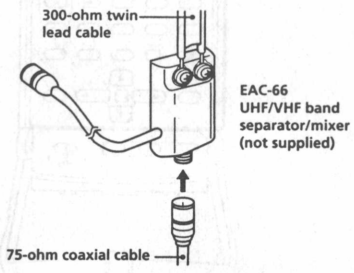
Attaching the external antenna connector

When using a 300-ohm twin lead cable for VHF/UHF antenna, use the EAC-32 antenna connector (not supplied) to connect the antenna to the VCR.

1 Loosen the screws on the antenna connector.

2 Wind the twin leads around the screws on the antenna connector.

3 Retighten the screws.



Attaching an UHF/VHF band mixer

When using both 75-ohm coaxial cable and 300-ohm twin lead cable for VHF/UHF antenna, use the EAC-66 UHF/VHF band separator/mixer (not supplied) to connect the antenna to the VCR.

1 Loosen the screws on the mixer.

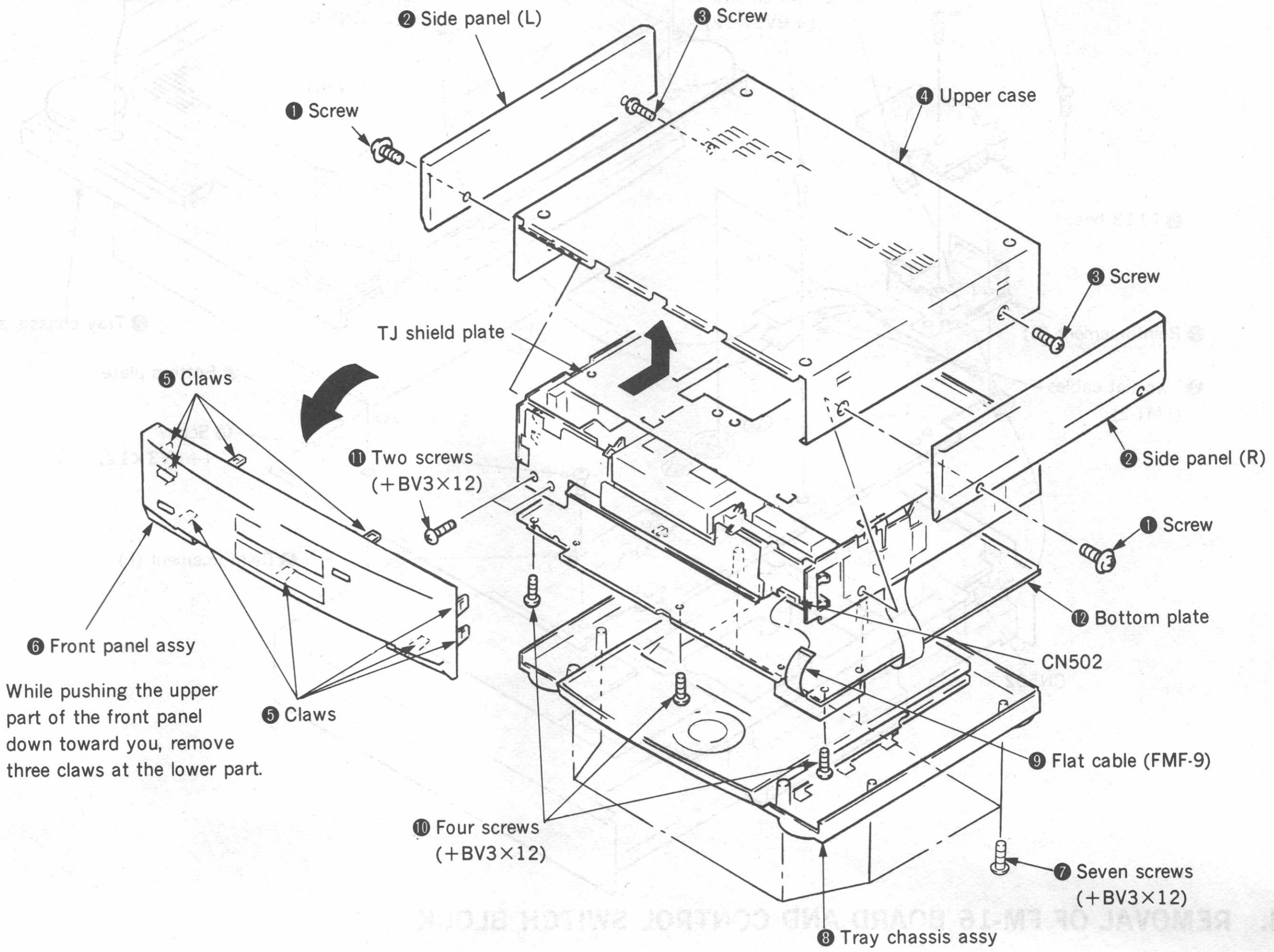
2 Wind the twin leads around the screws on the mixer.

3 Retighten the screws.

4 Connect the 75-ohm coaxial cable to the mixer.

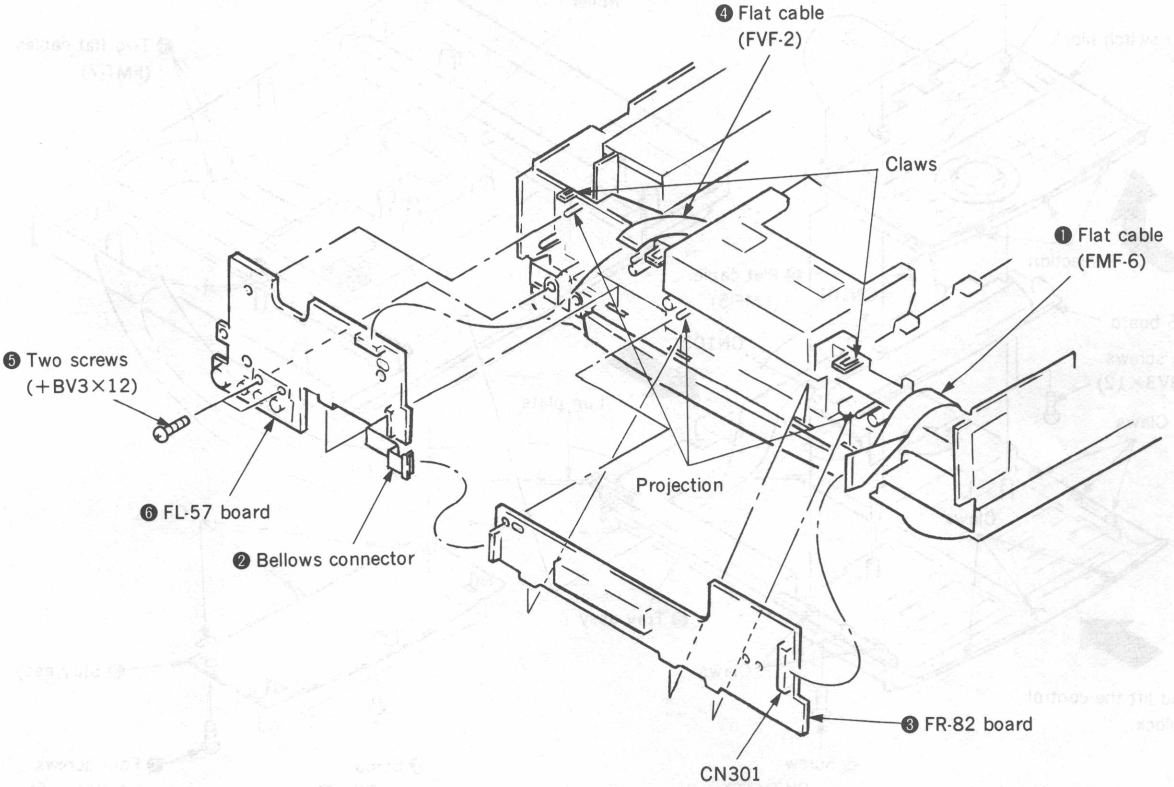
SECTION 2
DISASSEMBLY

2-1. REMOVAL OF CABINET ASSEMBLY


❷ Side panel (L)
❸ Screw
❶ Screw
❹ Upper case
❸ Screw
TJ shield plate
❺ Claws
⓫ Two screws (+BV3×12)
❷ Side panel (R)
❶ Screw
⓬ Bottom plate
❻ Front panel assy
CN502
❺ Claws
❾ Flat cable (FMF-9)
❿ Four screws (+BV3×12)
❼ Seven screws (+BV3×12)
❽ Tray chassis assy

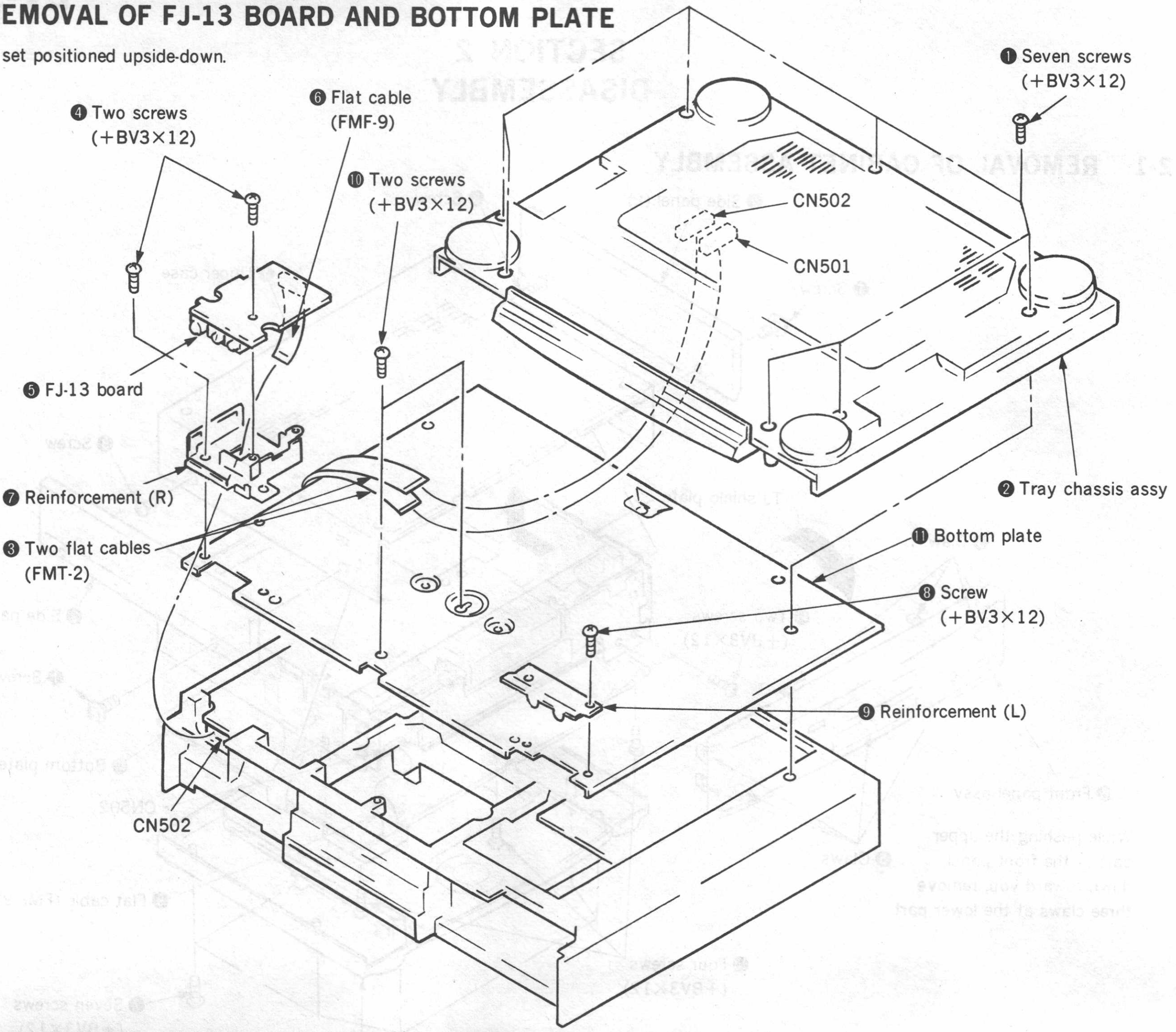
While pushing the upper part of the front panel down toward you, remove three claws at the lower part.

2-2. REMOVAL OF FL-57 BOARD AND FR-82 BOARD

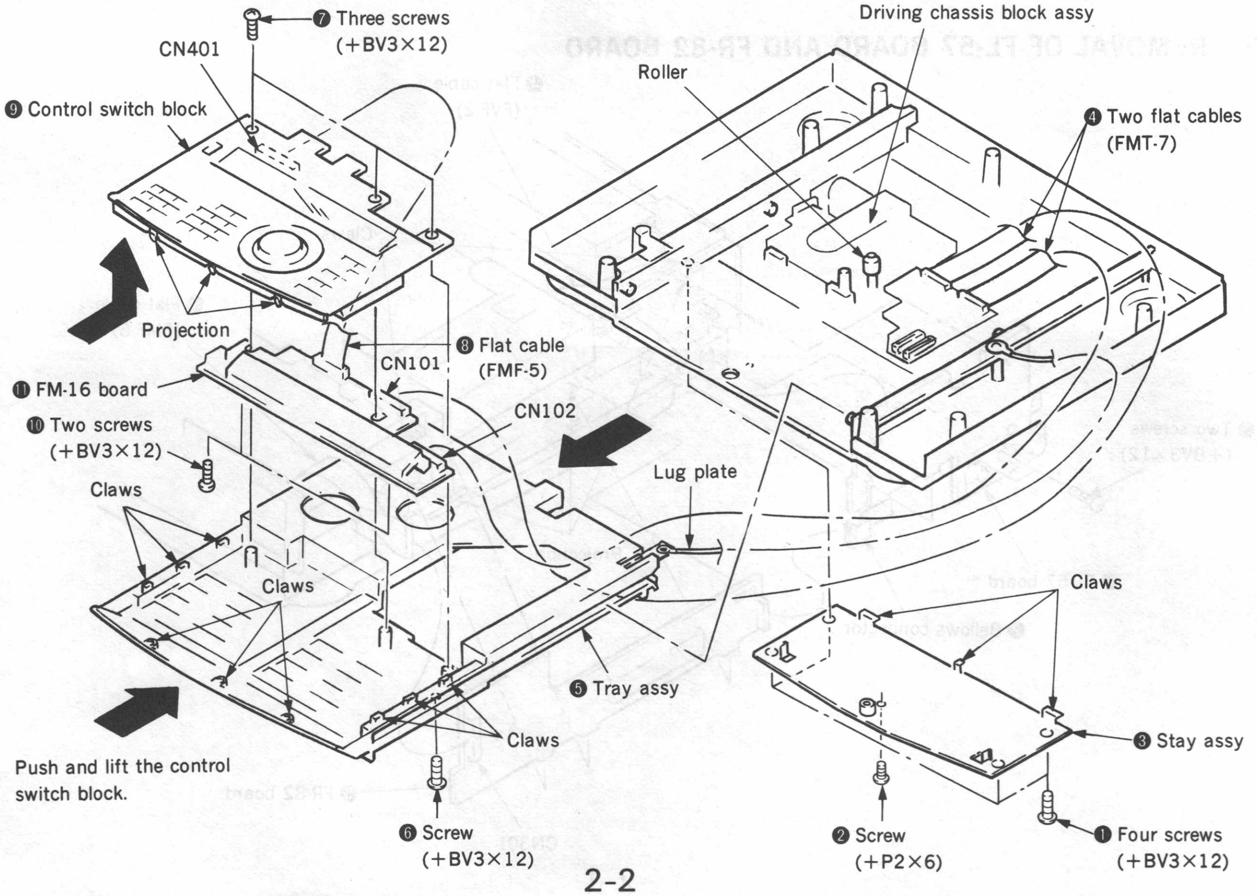

❹ Flat cable (FVF-2)
Claws
❶ Flat cable (FMF-6)
❺ Two screws (+BV3×12)
❻ FL-57 board
Projection
❷ Bellows connector
❸ FR-82 board
CN301

2-3. REMOVAL OF FJ-13 BOARD AND BOTTOM PLATE

Note : The set positioned upside-down.

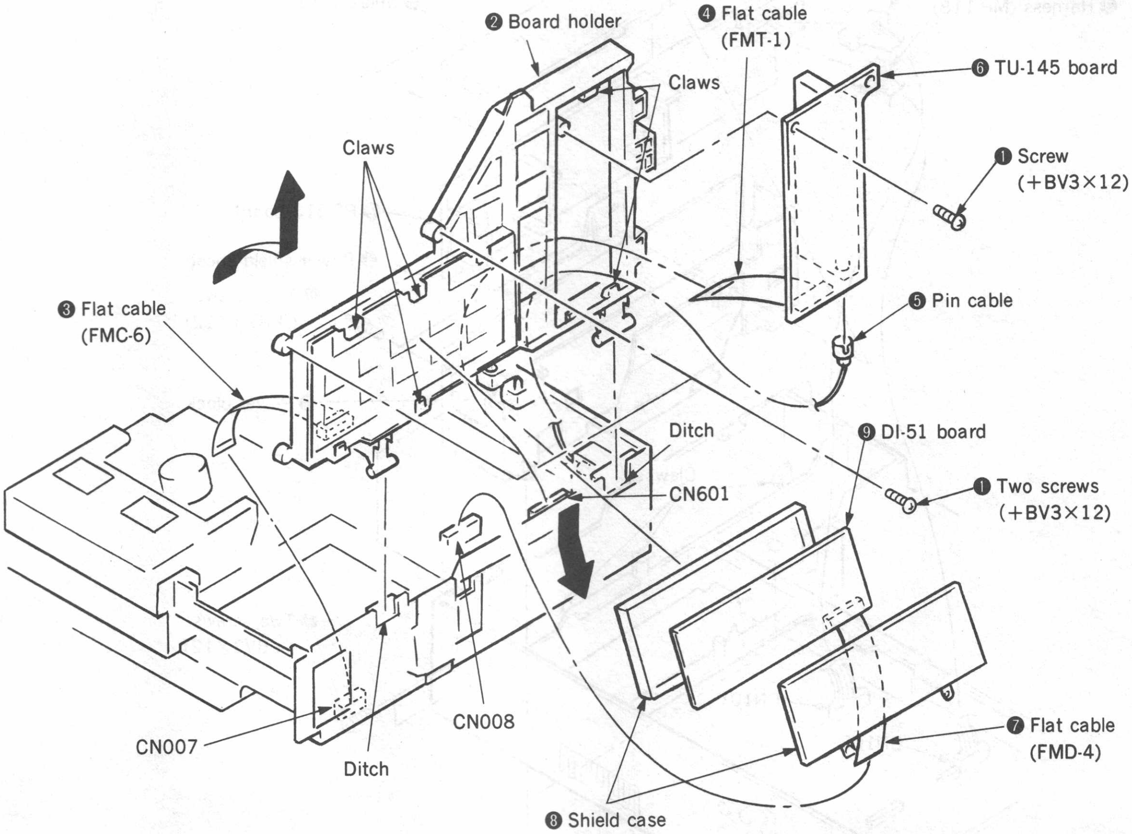

❶ Seven screws
(+BV3×12)
❹ Two screws
(+BV3×12)
❻ Flat cable
(FMF-9)
❿ Two screws
(+BV3×12)
CN502
CN501
❺ FJ-13 board
❼ Reinforcement (R)
❸ Two flat cables
(FMT-2)
❷ Tray chassis assy
⓫ Bottom plate
❽ Screw
(+BV3×12)
❾ Reinforcement (L)
CN502

2-4. REMOVAL OF FM-16 BOARD AND CONTROL SWITCH BLOCK


❼ Three screws
(+BV3×12)
CN401
❾ Control switch block
Projection
❽ Flat cable
(FMF-5)
CN101
⓫ FM-16 board
❿ Two screws
(+BV3×12)
CN102
Claws
Claws
Claws
❺ Tray assy
❻ Screw
(+BV3×12)
Driving chassis block assy
Roller
❹ Two flat cables
(FMT-7)
Lug plate
Claws
❸ Stay assy
❷ Screw
(+P2×6)
❶ Four screws
(+BV3×12)

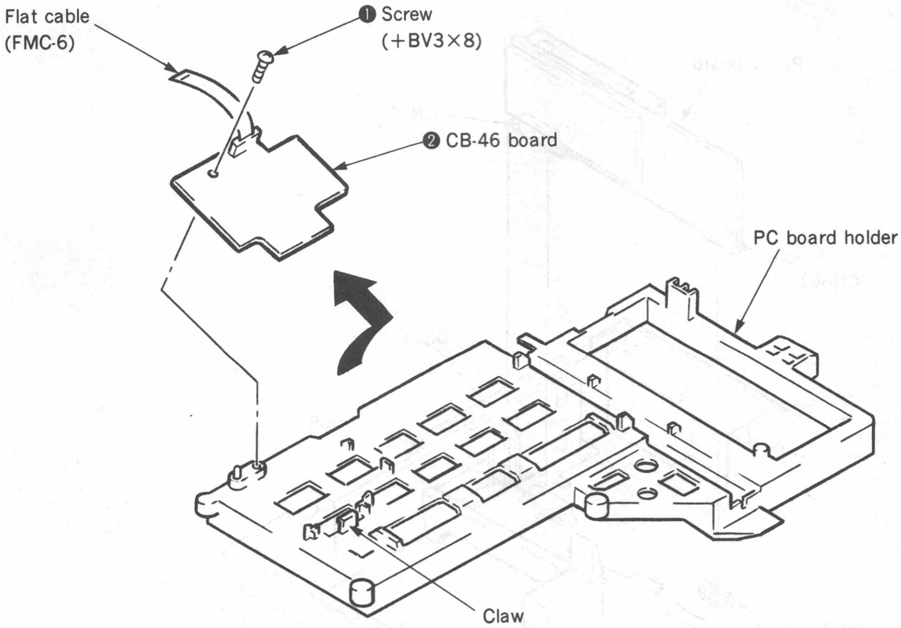
Push and lift the control switch block.

2-5. REMOVAL OF TU-145 BOARD AND DI-51 BOARD

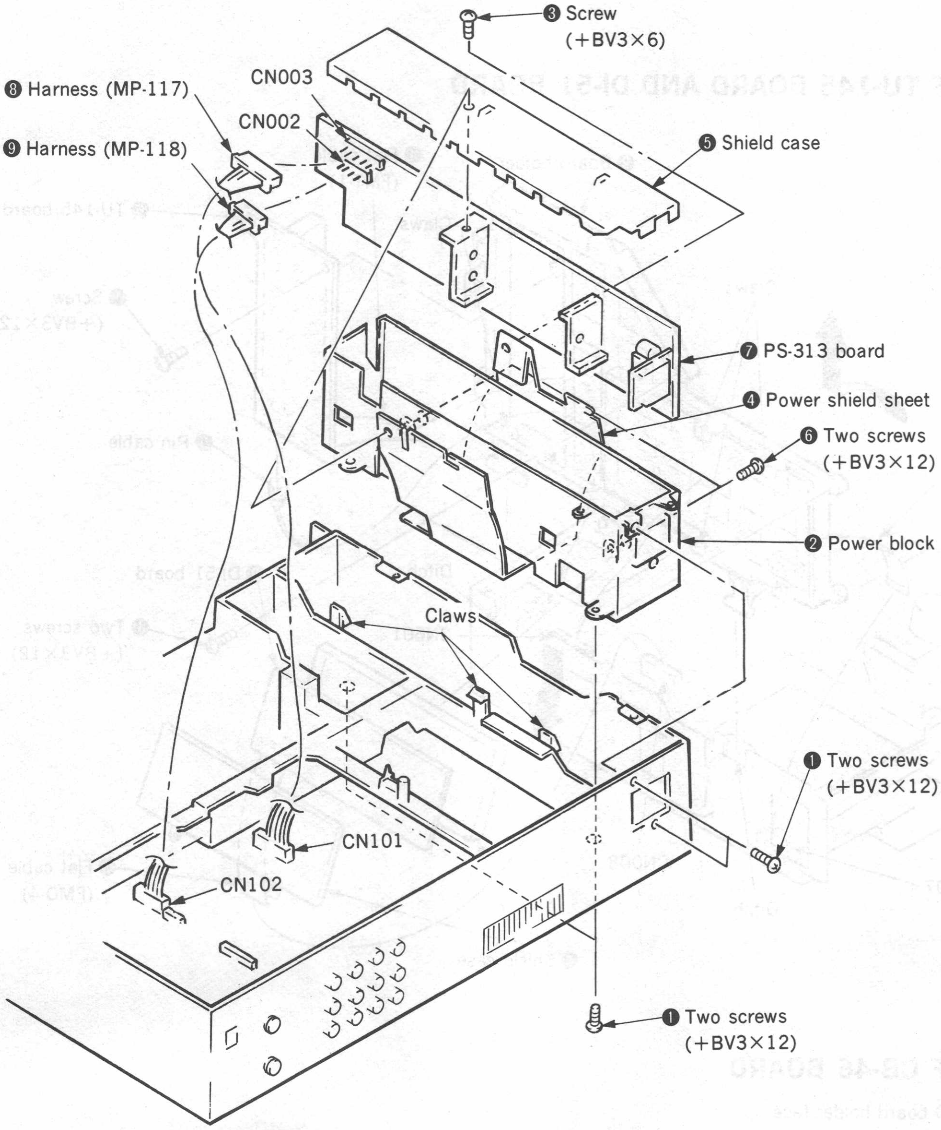

② Board holder
④ Flat cable (FMT-1)
Claws
⑥ TU-145 board
Claws
① Screw (+BV3×12)
③ Flat cable (FMC-6)
⑤ Pin cable
Ditch
⑨ DI-51 board
CN601
① Two screws (+BV3×12)
CN008
⑦ Flat cable (FMD-4)
CN007
Ditch
⑧ Shield case

2-6. REMOVAL OF CB-46 BOARD

Note : Put bottom of the PC board holder face up.

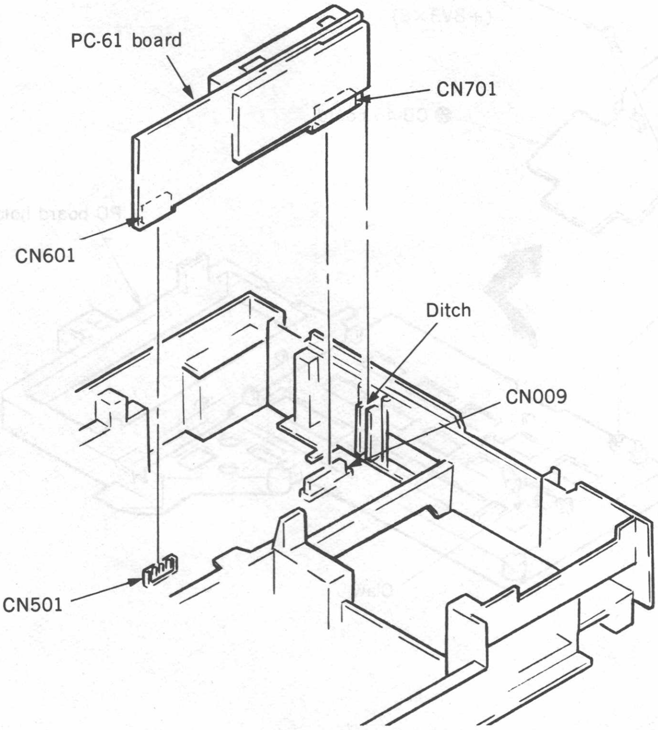

Flat cable (FMC-6)
① Screw (+BV3×8)
② CB-46 board
PC board holder
Claw

2-7. REMOVAL OF PS-313 BOARD



❸ Screw (+BV3×6)
CN003
❽ Harness (MP-117)
CN002
❾ Harness (MP-118)
❺ Shield case
❼ PS-313 board
❹ Power shield sheet
❻ Two screws (+BV3×12)
❷ Power block
Claws
❶ Two screws (+BV3×12)
CN101
CN102
❶ Two screws (+BV3×12)

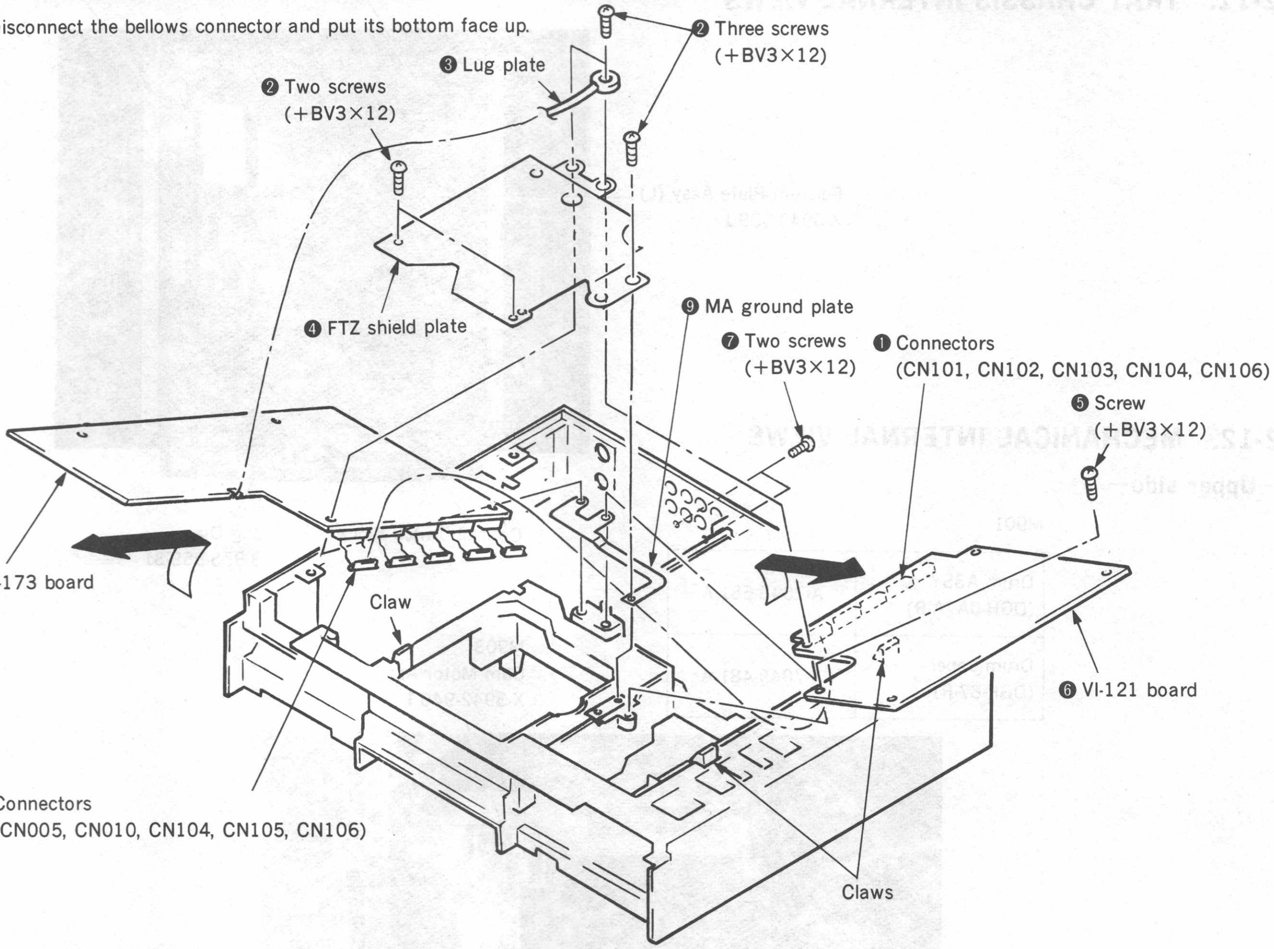
2-8. REMOVAL OF PC-61 BOARD



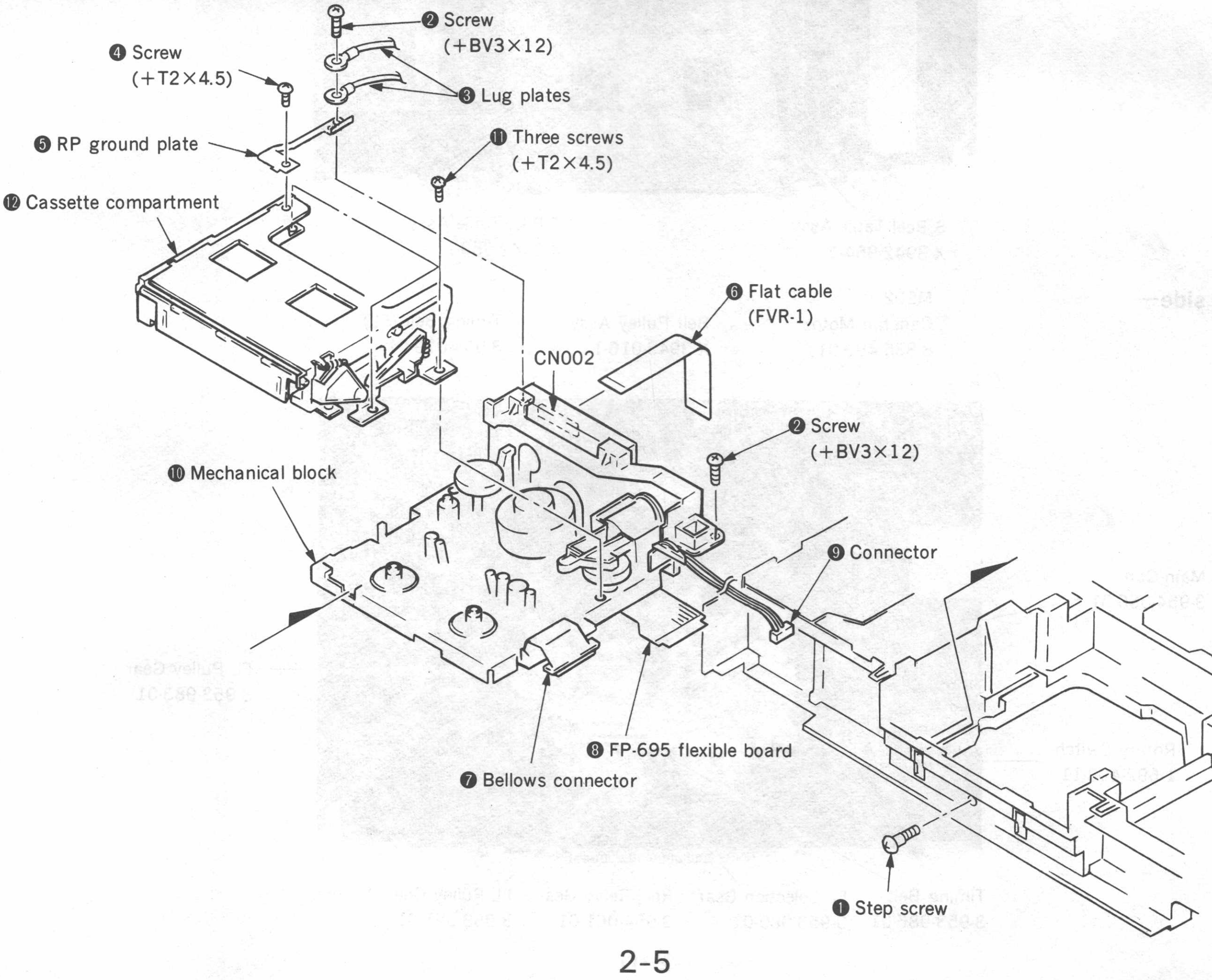
PC-61 board
CN701
CN601
Ditch
CN009
CN501

2-9. REMOVAL OF VI-121 BOARD AND MA-173 BOARD

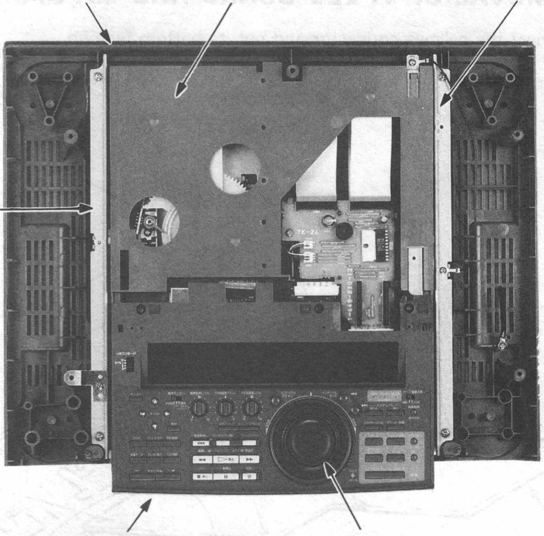
Note : Disconnect the bellows connector and put its bottom face up.


❷ Three screws (+BV3×12)
❸ Lug plate
❷ Two screws (+BV3×12)
❹ FTZ shield plate
❾ MA ground plate
❼ Two screws (+BV3×12)
❶ Connectors (CN101, CN102, CN103, CN104, CN106)
❺ Screw (+BV3×12)
❽ MA-173 board
Claw
❻ VI-121 board
❶ Connectors (CN005, CN010, CN104, CN105, CN106)
Claws

2-10. REMOVAL OF MECHANICAL BLOCK AND CASSETTE COMPARTMENT


❷ Screw (+BV3×12)
❹ Screw (+T2×4.5)
❸ Lug plates
❺ RP ground plate
⓫ Three screws (+T2×4.5)
⓬ Cassette compartment
❻ Flat cable (FVR-1)
CN002
❷ Screw (+BV3×12)
❿ Mechanical block
❾ Connector
❽ FP-695 flexible board
❼ Bellows connector
❶ Step screw

2-11. TRAY CHASSIS INTERNAL VIEWS

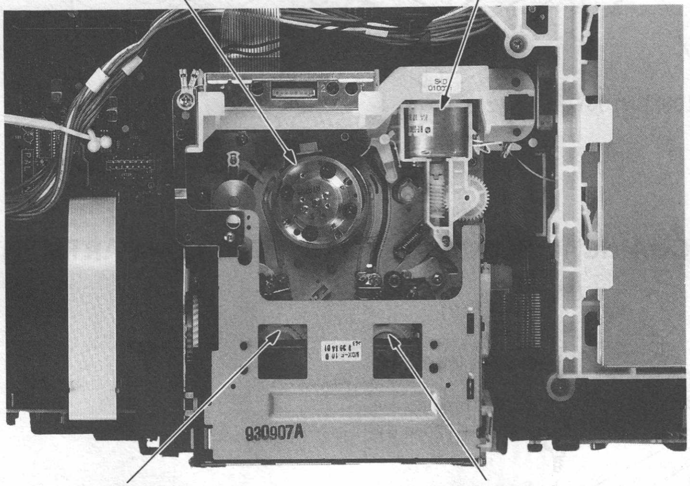

Tray Chassis
3-955-952-11
Tray Assy
X-3943-998-1
Fulcrum Plate Assy (R)
X-3943-360-1
Fulcrum Plate Assy (L)
X-3943-359-1
Control Switch Block
Jog Dial
3-955-359-31

2-12. MECHANICAL INTERNAL VIEWS

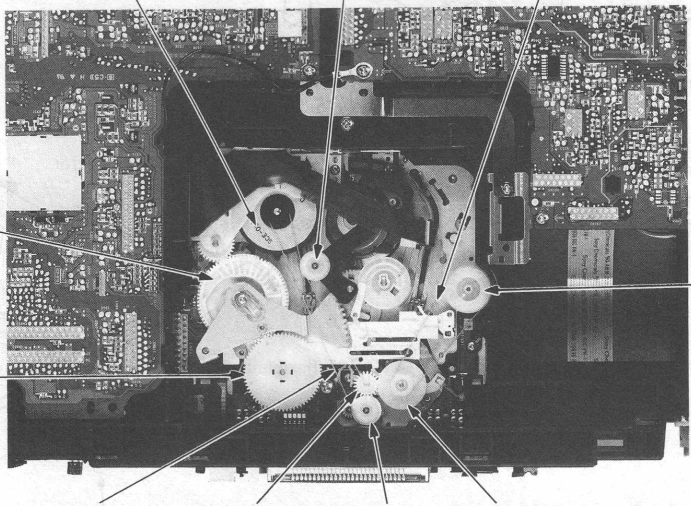
—Upper side—

M901

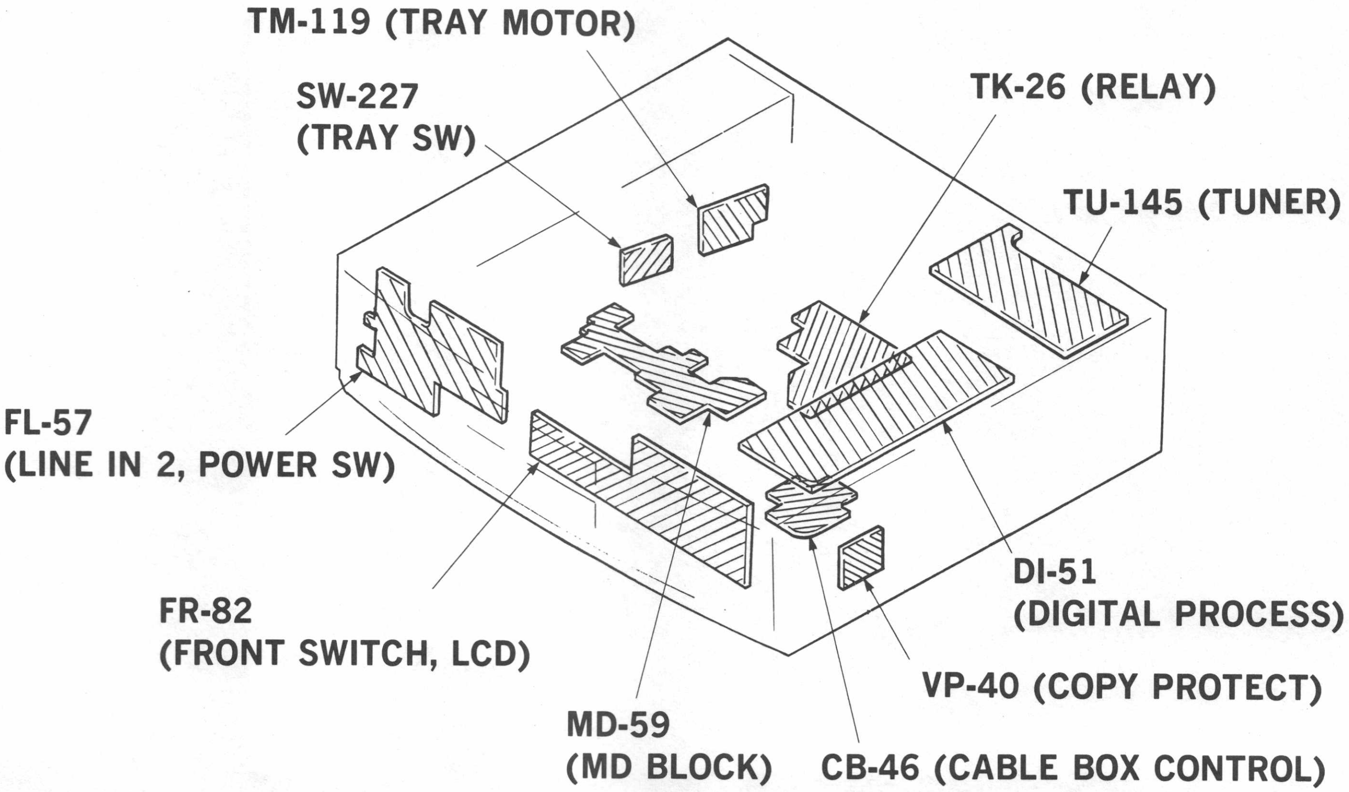
Drum ASSY (DGH-0A7A-R)	A-7048-681-A
Drum upper (DGR-87-R)	A-7049-481-A

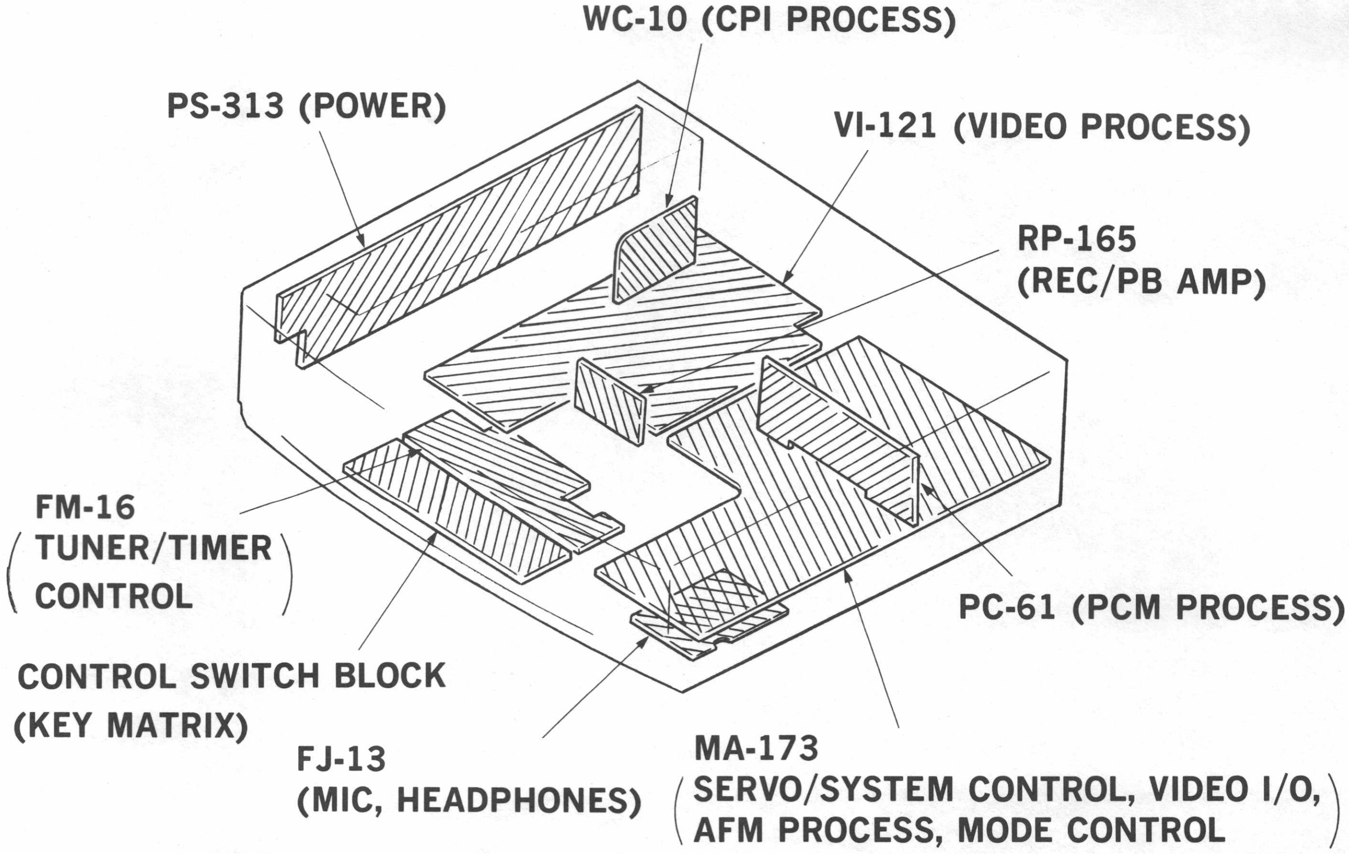

M903
Cam Motor Assy
X-3942-946-1
S Reel Table Assy
X-3942-954-1
T Reel Table Assy
X-3942-953-1

—Lower side—


M902
Capstan Motor
8-835-499-01
Belt Pulley Assy
X-3943-016-1
Timing Belt (FL)
3-954-079-01
Main Cam
3-954-050-01
FL Pulley Gear
3-953-983-01
Rotary Switch
1-692-498-11
Timing Belt
3-953-986-01
FL Selection Gear
3-953-980-01
Reel Relay Gear
3-954-061-01
FL Pulley Gear (Driving)
3-953-981-01

2-13. CIRCUIT BOARDS LOCATION

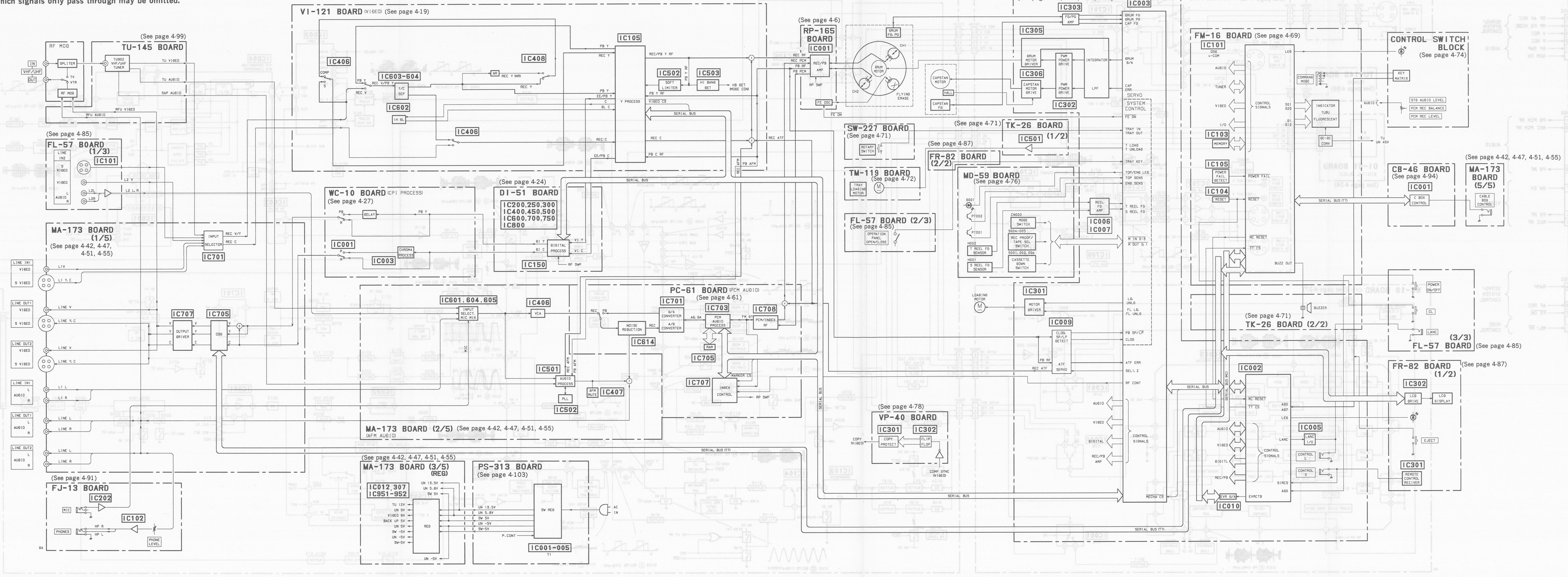

TM-119 (TRAY MOTOR)
SW-227
(TRAY SW)
TK-26 (RELAY)
TU-145 (TUNER)
FL-57
(LINE IN 2, POWER SW)
FR-82
(FRONT SWITCH, LCD)
MD-59
(MD BLOCK)
CB-46 (CABLE BOX CONTROL)
VP-40 (COPY PROTECT)
DI-51
(DIGITAL PROCESS)


WC-10 (CPI PROCESS)
PS-313 (POWER)
VI-121 (VIDEO PROCESS)
RP-165
(REC/PB AMP)
FM-16
(TUNER/TIMER
CONTROL)
CONTROL SWITCH BLOCK
(KEY MATRIX)
PC-61 (PCM PROCESS)
FJ-13
(MIC, HEADPHONES)
MA-173
(SERVO/SYSTEM CONTROL, VIDEO I/O,
AFM PROCESS, MODE CONTROL)

SECTION 3
BLOCK DIAGRAMS

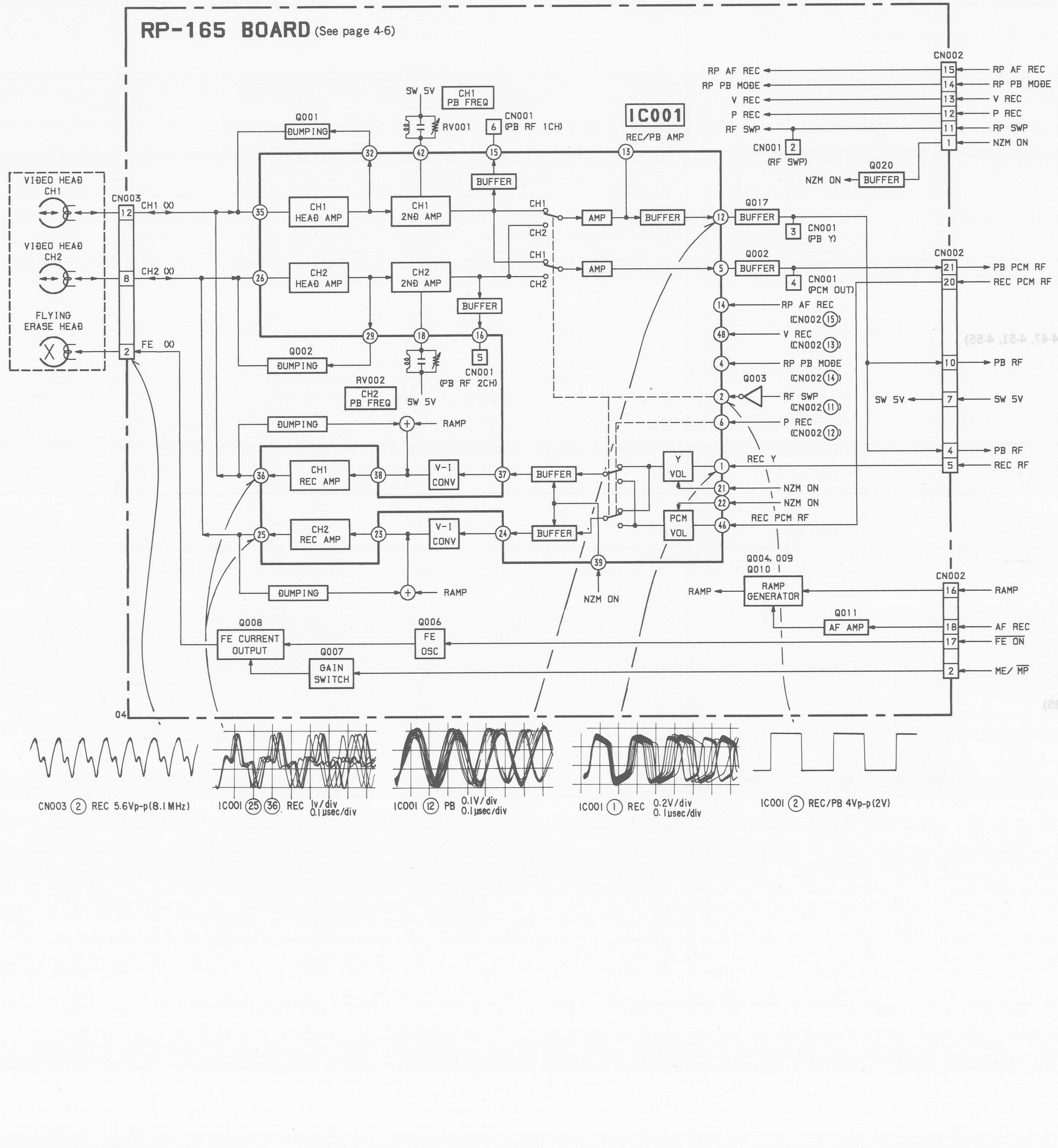
3-1. OVERALL BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.


TU-145 BOARD (See page 4-99)
FL-57 BOARD (1/3) (See page 4-85)
IC101
MA-173 BOARD (1/5) (See page 4-42, 4-47, 4-51, 4-55)
IC701
IC707
IC705
FJ-13 BOARD (See page 4-91)
IC202
IC102
VI-121 BOARD (VIDEO) (See page 4-19)
IC105
IC406
IC408
IC603-604
IC602
IC502
IC503
WC-10 BOARD (CPI PROCESS) (See page 4-27)
IC001
IC003
DI-51 BOARD (See page 4-24)
IC200,250,300
IC400,450,500
IC600,700,750
IC800
IC150
PC-61 BOARD (PCM AUDIO)
IC601,604,605
IC406
IC701
IC703
IC708
IC614
IC501
IC502
IC407
IC705
IC707
MA-173 BOARD (2/5) (AFM AUDIO) (See page 4-42, 4-47, 4-51, 4-55)
MA-173 BOARD (3/5) (REG) (See page 4-42, 4-47, 4-51, 4-55)
IC012,307
IC951-952
PS-313 BOARD (See page 4-103)
IC001-005
RP-165 BOARD (See page 4-6)
IC001
SW-227 BOARD (See page 4-71)
TM-119 BOARD (See page 4-72)
FL-57 BOARD (2/3) (See page 4-85)
TK-26 BOARD (1/2) (See page 4-71)
IC501
FR-82 BOARD (2/2) (See page 4-87)
MD-59 BOARD (See page 4-76)
IC006
IC007
VP-40 BOARD (See page 4-78)
IC301
IC302
MA-173 BOARD (4/5) (SERVO/SYSCOM) (See page 4-42, 4-47, 4-51, 4-55)
IC003
IC303
IC305
IC306
IC302
IC301
IC009
FM-16 BOARD (See page 4-69)
IC101
IC103
IC105
IC104
IC002
IC005
IC010
CONTROL SWITCH BLOCK (See page 4-74)
CB-46 BOARD (See page 4-94)
IC001
MA-173 BOARD (5/5) (See page 4-42, 4-47, 4-51, 4-55)
TK-26 BOARD (2/2) (See page 4-71)
FL-57 BOARD (3/3) (See page 4-85)
FR-82 BOARD (1/2) (See page 4-87)
IC302
IC301
SERIAL BUS

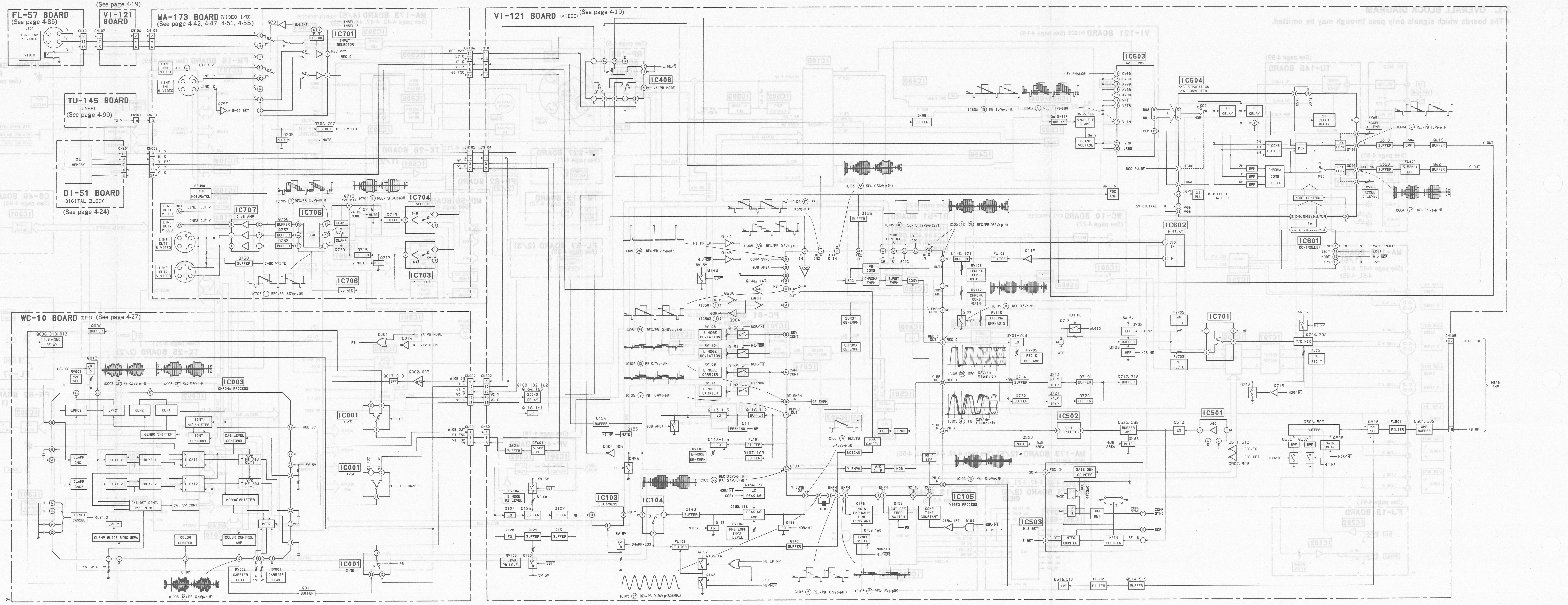
3-2. HEAD AMP BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.


RP-165 BOARD (See page 4-6)
IC001
REC/PB AMP
VIDEO HEAD CH1
VIDEO HEAD CH2
FLYING ERASE HEAD
CH1 HEAD AMP
CH2 HEAD AMP
CH1 2ND AMP
CH2 2ND AMP
CH1 REC AMP
CH2 REC AMP
BUFFER
AMP
BUMPING
CH1 PB FREQ
CH2 PB FREQ
V-I CONV
Y VOL
PCM VOL
RAMP GENERATOR
AF AMP
FE CURRENT OUTPUT
FE OSC
GAIN SWITCH
RP AF REC
RP PB MODE
V REC
P REC
RF SWP
NZM ON
PB PCM RF
REC PCM RF
PB RF
SW 5V
REC RF
RAMP
AF REC
FE ON
ME/RP
SERVO/SYSTEM CONTROL
AUDIO
VIDEO
MODE CONTROL
CN003 (2) REC 5.6Vp-p(8.1MHz)
IC001 (25)(36) PB
IC001 (2) PB
IC001 (1) REC
IC001 (2) REC/PB 4Vp-p(2V)

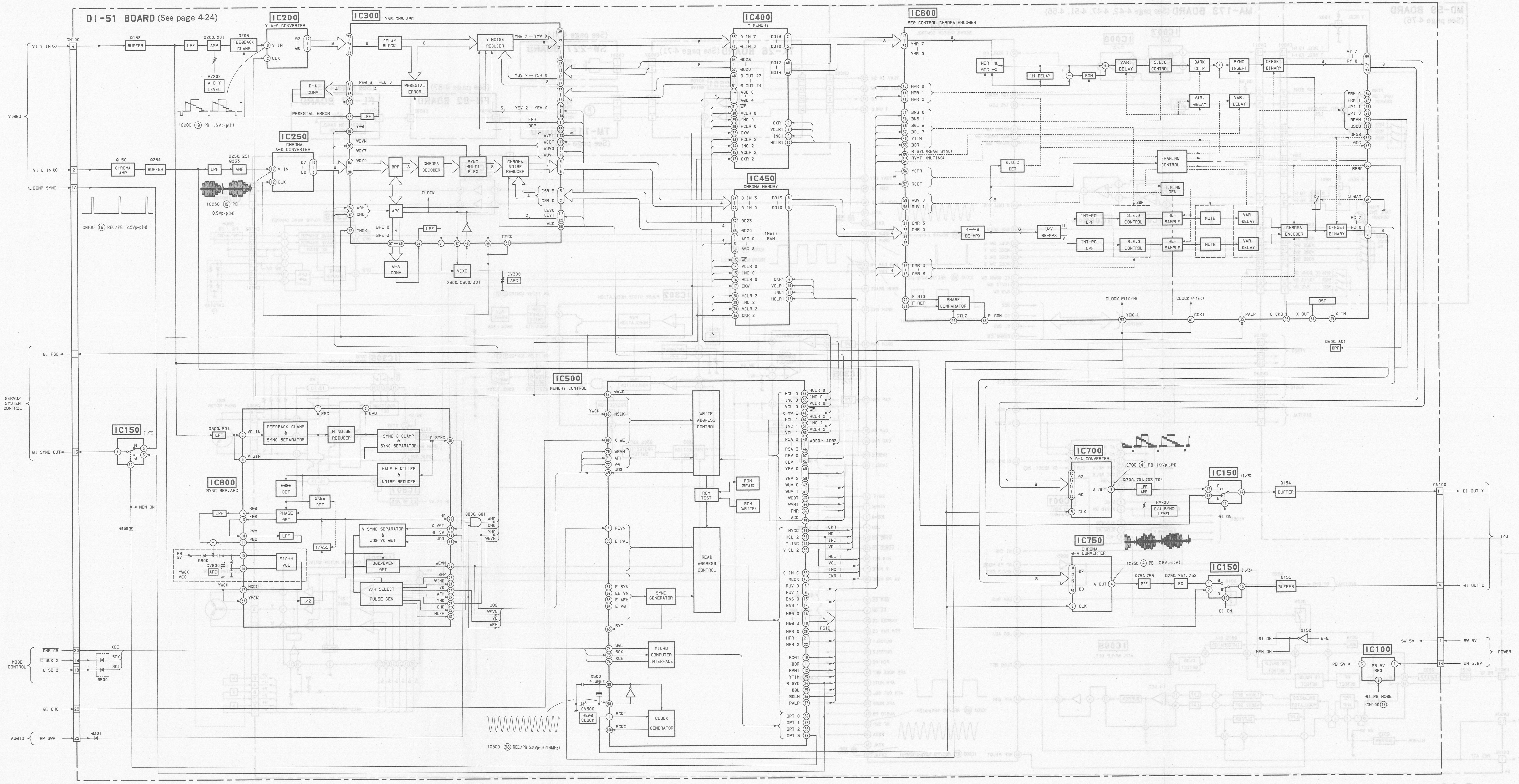
3-3. VIDEO BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.


FL-57 BOARD (See page 4-85)
VI-121 BOARD (See page 4-19)
MA-173 BOARD (See page 4-42, 4-47, 4-51, 4-55)
TU-145 BOARD (See page 4-99)
DI-51 BOARD DIGITAL BLOCK (See page 4-24)
WC-10 BOARD (See page 4-27)
VI-121 BOARD (VIDEO) (See page 4-19)
IC701
IC704
IC705
IC706
IC707
IC703
IC003 CHROMA PROCESS
IC001
IC406
IC103
IC104
IC105 VIDEO PROCESS
IC501
IC502
IC503
IC601
IC602
IC603 A/D CONV.
IC604 Y/C SEPARATION D/A CONVERTER
IC701
HEAD AMP
Y OUT
C OUT
LINE
BUFFER
CLAMP
MUTE

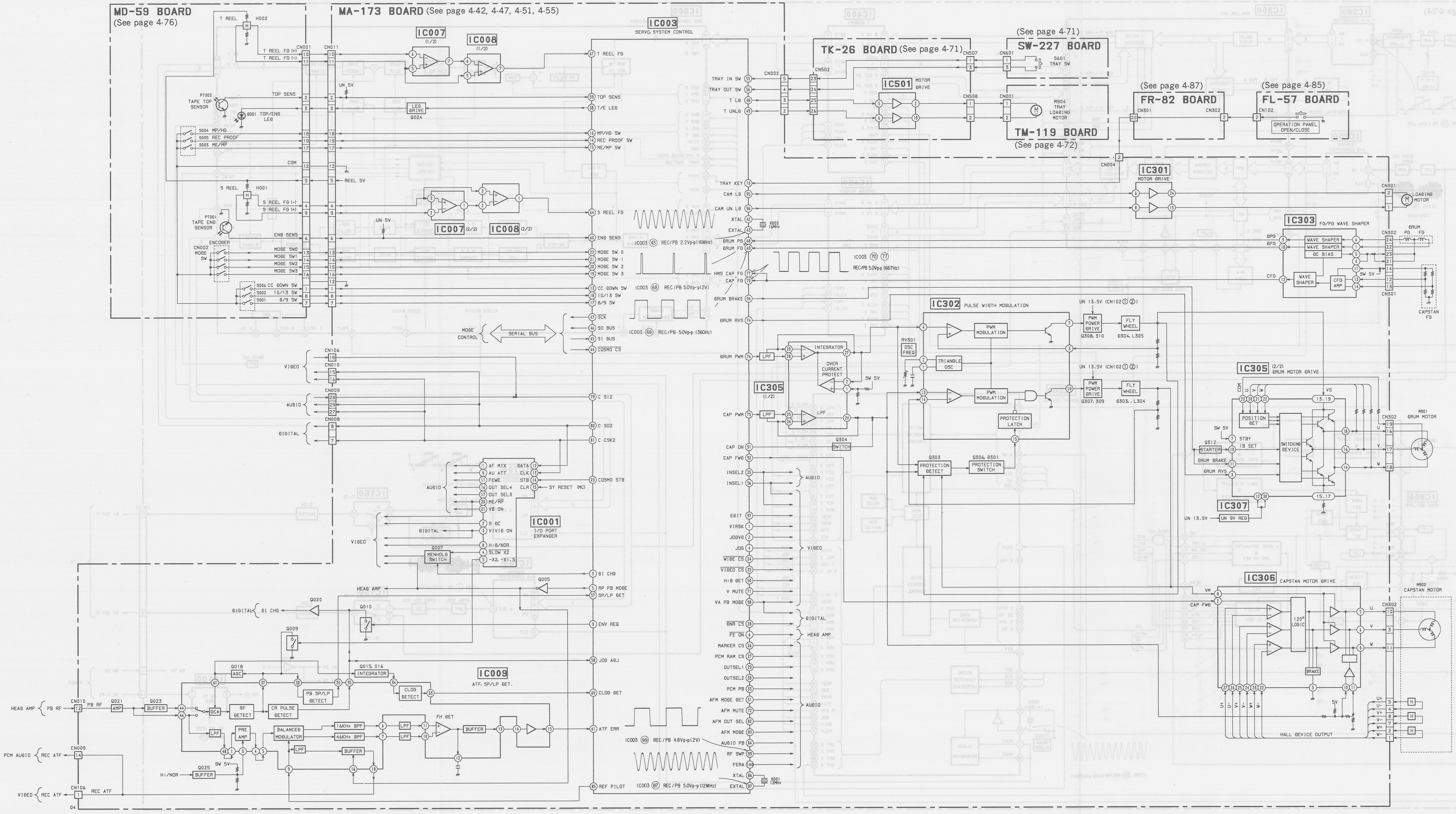
3-4. DIGITAL BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.


DI-51 BOARD (See page 4-24)
CN100
V1 Y IN 00
VIDEO
V1 C IN 00
COMP SYNC
D1 FSC
SERVO/ SYSTEM CONTROL
D1 SYNC OUT
MODE CONTROL
BNR CS
C SCK 2
C SO 2
D1 CHO
AUDIO
RP SWP
Q153 BUFFER
LPF
Q200, 201 AMP
Q203 FEEDBACK CLAMP
RV202 A-D Y LEVEL
IC200 ⑲ PB 1.5Vp-p(H)
IC200 Y A-D CONVERTER
IC300 YNR, CNR, APC
DELAY BLOCK
Y NOISE REDUCER
D-A CONV
PEDESTAL ERROR
IC250 CHROMA A-D CONVERTER
Q150 CHROMA AMP
Q254 BUFFER
Q250, 251 Q253 AMP
IC250 ⑧ PB 0.5Vp-p(H)
CN100 ⑯ REC/PB 2.5Vp-p(H)
BPF
CHROMA DECODER
SYNC MULTI PLEX
CHROMA NOISE REDUCER
APC
VCXO
X300, Q300, 301
CV300 APC
CLOCK
IC400 Y MEMORY
IC450 CHROMA MEMORY
IC600 SEQ CONTROL, CHROMA ENCODER
NOR DOC
1H DELAY
ROM
VAR. DELAY
S.E.Q CONTROL
DARK CLIP
SYNC INSERT
OFFSET BINARY
FRAMING CONTROL
TIMING GEN
D.O.C DET
4→8 DE-MPX
U/V DE-MPX
INT-POL LPF
RE-SAMPLE
MUTE
CHROMA ENCODER
PHASE COMPARATOR
OSC
CLOCK (910fH)
CLOCK (4fsc)
Q600, 601 BPF
IC150 (1/3)
IC800 SYNC SEP, AFC
Q800, 801 LPF
FEEDBACK CLAMP & SYNC SEPARATOR
H NOISE REDUCER
SYNC & CLAMP & SYNC SEPARATOR
HALF H KILLER & NOISE REDUCER
EDGE DET
SKEW DET
PHASE DET
910fH VCO
1/455
V SYNC SEPARATOR & JOG VG DET
ODD/EVEN DET
V/H SELECT PULSE GEN
1/2
YWCK VCO
CV800 AFC
MEM ON
D150
D500
IC500 MEMORY CONTROL
WRITE ADDRESS CONTROL
ROM TEST
ROM (READ)
ROM (WRITE)
READ ADDRESS CONTROL
SYNC GENERATOR
MICRO COMPUTER INTERFACE
X500 14.3MHz
CV500 READ CLOCK
CLOCK GENERATOR
IC500 ⑱ REC/PB 5.2Vp-p(14.3MHz)
IC700 Y D-A CONVERTER
IC700 ④ PB 1.0Vp-p(H)
Q700, 701, 703, 704 LPF AMP
RV700 D/A SYNC LEVEL
IC750 CHROMA D-A CONVERTER
IC750 ④ PB 0.6Vp-p(H)
Q754, 755 BPF
Q750, 751, 752 EQ
Q154 BUFFER
Q155 BUFFER
D1 ON
Q152
E-E
MEM ON
IC100 PB 5V REG
D1 PB MODE (CN100 ⑰)
D1 OUT Y
D1 OUT C
I/O
SW 5V
UN 5.8V
POWER

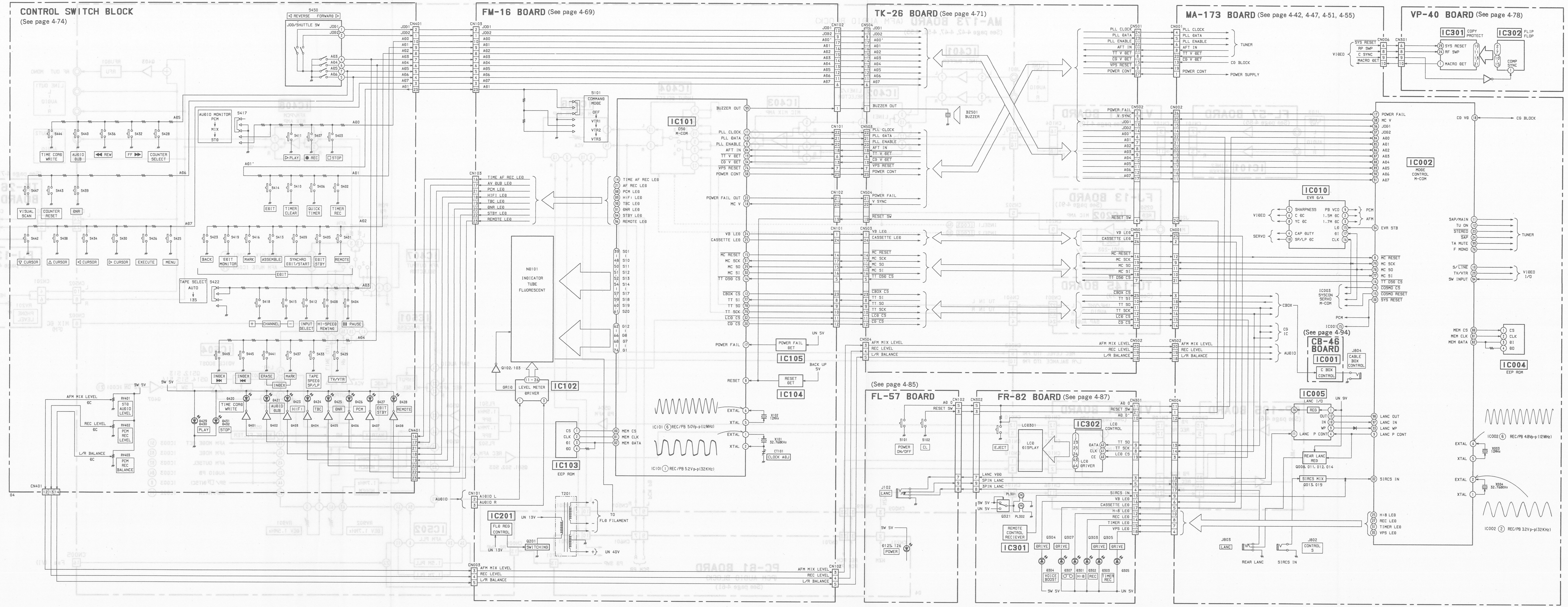
3-5. SERVO/SYSTEM CONTROL BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.


MD-59 BOARD
(See page 4-76)
MA-173 BOARD (See page 4-42, 4-47, 4-51, 4-55)
IC003
SERVO SYSTEM CONTROL
IC007 (1/2)
IC008 (1/2)
IC007 (2/2)
IC008 (2/2)
T REEL H002
S REEL H001
T REEL FG (+)
T REEL FG (-)
S REEL FG (-)
S REEL FG (+)
TOP SENS
PT002 TAPE TOP SENSOR
D001 TOP/END LED
LED DRIVE Q024
S004 MP/HG
S005 REC PROOF
S003 ME/MP
COM
REEL 5V
UN 5V
PT001 TAPE END SENSOR
END SENS
ENCODER
CN002 MODE SW
MODE SW0
MODE SW1
MODE SW2
MODE SW3
S006 CC DOWN SW
S002 10/13 SW
S001 8/9 SW
CN001
CN011
T REEL FG
TOP SENS
T/E LED
MP/HG SW
REC PROOF SW
ME/MP SW
S REEL FG
END SENS
MODE SW 0
MODE SW 1
MODE SW 2
MODE SW 3
CC DOWN SW
10/13 SW
8/9 SW
SCK
SO BUS
SI BUS
COSMO CS
MODE CONTROL
SERIAL BUS
IC003 43 REC/PB 2.2Vp-p (16MHz)
IC003 68 REC/PB 5.0Vp-p (2V)
IC003 69 REC/PB 5.0Vp-p (360Hz)
IC003 70 77 REC/PB 5.0Vp-p (667Hz)
IC003 99 REC/PB 4.8Vp-p (2V)
IC003 87 REC/PB 5.0Vp-p (12MHz)
VIDEO
AUDIO
DIGITAL
CN106
CN010
CN009
CN008
C SI2
C SO2
C CSK2
IC001
I/O PORT EXPANDER
AF MIX
AU ATT
FEWE
OUT SEL4
OUT SEL3
OUT SEL3
ME/MP
VD ON
DATA
CLK
STB
CLR
SY RESET (MC)
COSMO STB
S DC
VIVID ON
HiB/NOR
SLOW X2
-X2, -X1.5
Q007 MENHOLD SWITCH
HEAD AMP
Q005
DI CH0
RP PB MODE
SP/LP DET
Q020
Q010
Q009
ENV REQ
JOG ADJ
Q018 AGC
Q015, 016 INTEGRATOR
PB SP/LP DETECT
CLOG DETECT
CLOG DET
IC009
ATF, SP/LP DET.
HEAD AMP
PB RF
CN010
Q021 AMP
Q023 BUFFER
SCA
RF DETECT
CR PULSE DETECT
LPF
PRE AMP
BALANCED MODULATOR
16KHz BPF
46KHz BPF
LPF
FM DET
BUFFER
ATF ERR
PCM AUDIO
REC ATF
CN009
Q025 BUFFER
HI/NOR
SW 5V
VIDEO
REC ATF
CN106
REF PILOT
TRAY IN SW
TRAY OUT SW
T LD
T UNLD
TRAY KEY
CAM LD
CAM UN LD
XTAL
X002 16MHz
EXTAL
DRUM PG
DRUM FG
HMS CAP FG
CAP FG
DRUM BRAKE
DRUM RVS
DRUM PWM
CAP PWM
CAP ON
CAP FWD
INSEL2
INSEL1
EDIT
VIRSK
JOGVD
JOD
WIDE CS
VIDEO CS
HiB DET
V MUTE
VA PB MODE
DNR CS
FE ON
MARKER CS
PCM RAM CS
OUTSEL1
OUTSEL2
PCM PB
AFM MODE DET
AFM MUTE
AFM OUT SEL
AFM MODE
AUDIO PB
RF SWP
FERA
XTAL
X001 12MHz
EXTAL
CN002
TK-26 BOARD (See page 4-71)
CN502
IC501 MOTOR DRIVE
CN507
CN508
(See page 4-71)
SW-227 BOARD
CN601
S601 TRAY SW
CN001
M904 TRAY LOADING MOTOR
TM-119 BOARD
(See page 4-72)
(See page 4-87)
FR-82 BOARD
CN501
CN502
(See page 4-85)
FL-57 BOARD
CN102
OPERATION PANEL OPEN/CLOSE
CN004
IC301
MOTOR DRIVE
CN301
LOADING MOTOR
IC303
FG/PG WAVE SHAPER
DPG
DFG
WAVE SHAPER
WAVE SHAPER
DC BIAS
CFG
WAVE SHAPER
CFG AMP
SW 5V
CN302
DRUM PG FG
CN301
CAPSTAN FG
IC302
PULSE WIDTH MODULATION
INTEGRATOR
OVER CURRENT PROTECT
RV301 OSC FREQ
TRIANGLE OSC
PWM MODULATION
PWM MODULATION
PROTECTION LATCH
UN 13.5V (CN102 1 2)
PWM POWER DRIVE
Q308, 310
FLY WHEEL
Q304, L305
PWM POWER DRIVE
Q307, 309
FLY WHEEL
Q303, L304
IC305 (1/2)
LPF
LPF
Q304 SWITCH
Q303 PROTECTION DETECT
Q306, 301 PROTECTION SWITCH
IC305 (2/2)
DRUM MOTOR DRIVE
POSITION DET
SWITCHING DEVICE
Q312 STARTER
SW 5V
STBY
ID SET
DRUM BRAKE
DRUM RVS
VS
13, 19
15, 17
IC307
UN 13.5V
UN 9V REG
CN302
M901 DRUM MOTOR
U
V
W
IC306
CAPSTAN MOTOR DRIVE
VM
CAP FWD
120° LOGIC
BRAKE
5V
HALL DEVICE OUTPUT
CN302
M902 CAPSTAN MOTOR
U+
U-
V+
V-
W+
W-
H
H
H

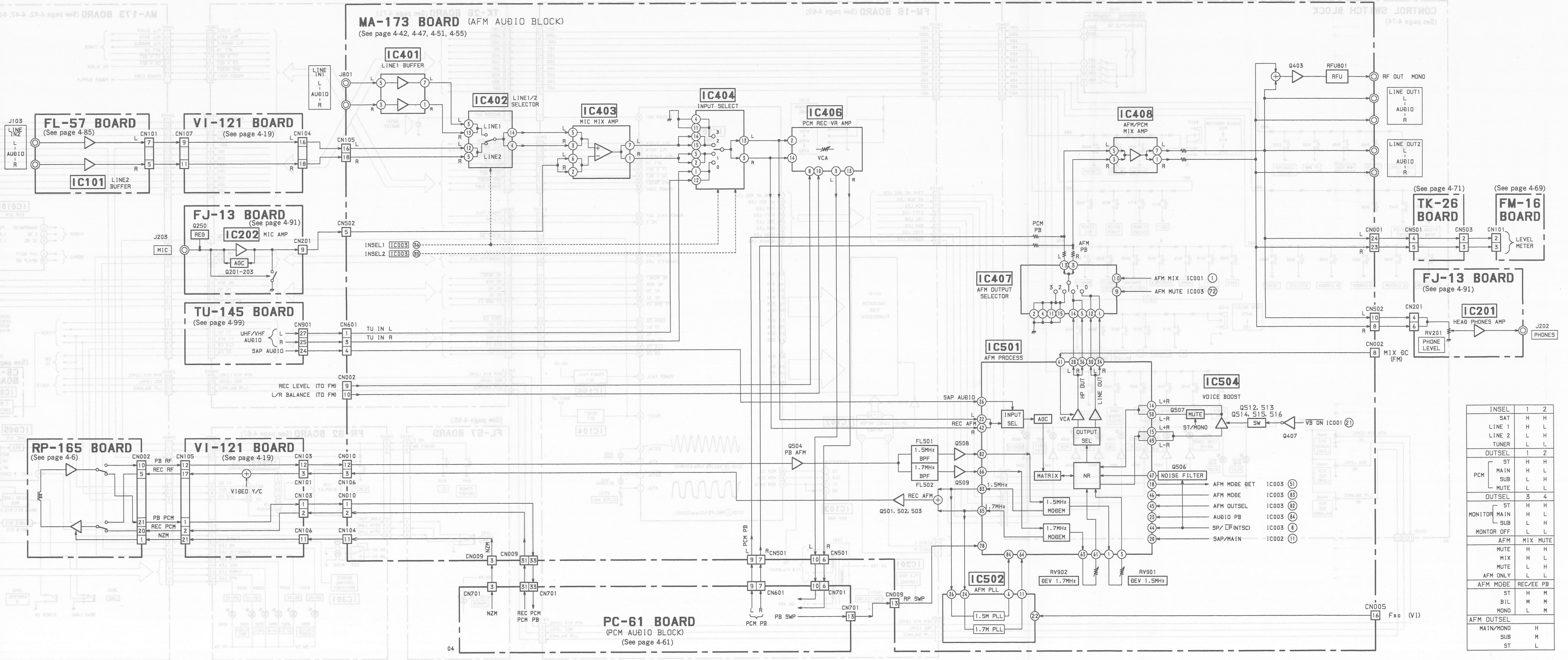
3-6. TIMER/TUNER/MODE CONTROL BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.


CONTROL SWITCH BLOCK
(See page 4-74)
FM-16 BOARD (See page 4-69)
TK-26 BOARD (See page 4-71)
MA-173 BOARD (See page 4-42, 4-47, 4-51, 4-55)
VP-40 BOARD (See page 4-78)
CB-46 BOARD
(See page 4-94)
FL-57 BOARD
(See page 4-85)
FR-82 BOARD (See page 4-87)
IC101
OSD
M-COM
IC102
LEVEL METER DRIVER
IC103
EEP ROM
IC104
IC105
POWER FAIL DET
IC201
FLD REG CONTROL
ND101
INDICATOR TUBE FLUORESCENT
IC002
MODE CONTROL
M-COM
IC004
EEP ROM
IC005
LANC I/O
IC010
EVR D/A
IC001
C BOX CONTROL
IC301
COPY PROTECT
IC302
FLIP FLOP
IC301
REMOTE CONTROL RECIEVER
IC302
LCD CONTROL
LCD DRIVER
LCD DISPLAY
BZ501
BUZZER
S450
JOG/SHUTTLE SW
S101
COMMAND MODE
TIME CODE WRITE
AUDIO DUB
REW
FF
COUNTER SELECT
VISUAL SCAN
COUNTER RESET
BNR
CURSOR
EXECUTE
MENU
BACK
EDIT MONITOR
MARK
ASSEMBLE
SYNCHRO EDIT/START
EDIT STBY
REMOTE
PLAY
REC
STOP
EDIT
TIMER CLEAR
QUICK TIMER
TIMER REC
TAPE SELECT S422
AUTO
135
CHANNEL
INPUT SELECT
HI-SPEED REWIND
PAUSE
INDEX
ERASE
TAPE SPEED SP/LP
TV/VTR
AUDIO MONITOR
PCM
MIX
STO
AFM MIX LEVEL
REC LEVEL
L/R BALANCE
PLL CLOCK
PLL DATA
PLL ENABLE
AFT IN
TT V SET
CS V SET
VPS RESET
POWER CONT
BUZZER OUT
POWER FAIL
MC V
RESET SW
VS LED
CASSETTE LED
MC RESET
MC SCK
MC SO
MC SI
TT OSD CS
CBOX CS
TT SI
TT SO
TT SCK
LCD CS
DD CS
EXTAL
XTAL
CLOCK ADJ
MEM CS
MEM CLK
MEM DATA
TIME AF REC LED
AV SUB LED
PCM LED
HIFI LED
TBC LED
BNR LED
STBY LED
REMOTE LED
IC101 ⑥ REC/PB 5.0Vp-p(12MHz)
IC101 ③ REC/PB 5.2Vp-p(32KHz)
IC002 ⑥ REC/PB 4.8Vp-p(12MHz)
IC002 ② REC/PB 3.2Vp-p(32KHz)
TO FLB FILAMENT
SWITCHING
UN 13V
UN 40V
UN 5V
BACK UP 5V
RESET SET
TUNER
CG BLOCK
POWER SUPPLY
SYS RESET
RF SWP
C SYNC
MACRO SET
COMP SYNC
VIDEO
SERVO
SHARPNESS
C DC
YC DC
CAP DUTY
SP/LP GD
PCM
AFM
EVR STB
CBOX
CD IC
AUDIO
SYSCON SERVO M-COM
CABLE BOX CONTROL
SAP/MAIN
TU ON
STEREO
SAP
TA MUTE
F MONO
S/LINE
TV/VTR
SW INPUT
VIDEO I/O
LANC OUT
LANC IN
LANC WP
LANC P CONT
REAR LANC RED
SIRCS MIX
SIRCS IN
HI8 LED
REC LED
TIMER LED
VPS LED
REAR LANC
SIRCS IN
CONTROL S
POWER ON/OFF
EJECT
VOICE BOOST
HI8
REC
TIMER REC
DRIVE
LANC VDD
SPIN LANC
POWER
AUDIO L
AUDIO R

3-7. AFM AUDIO BLOCK DIAGRAM

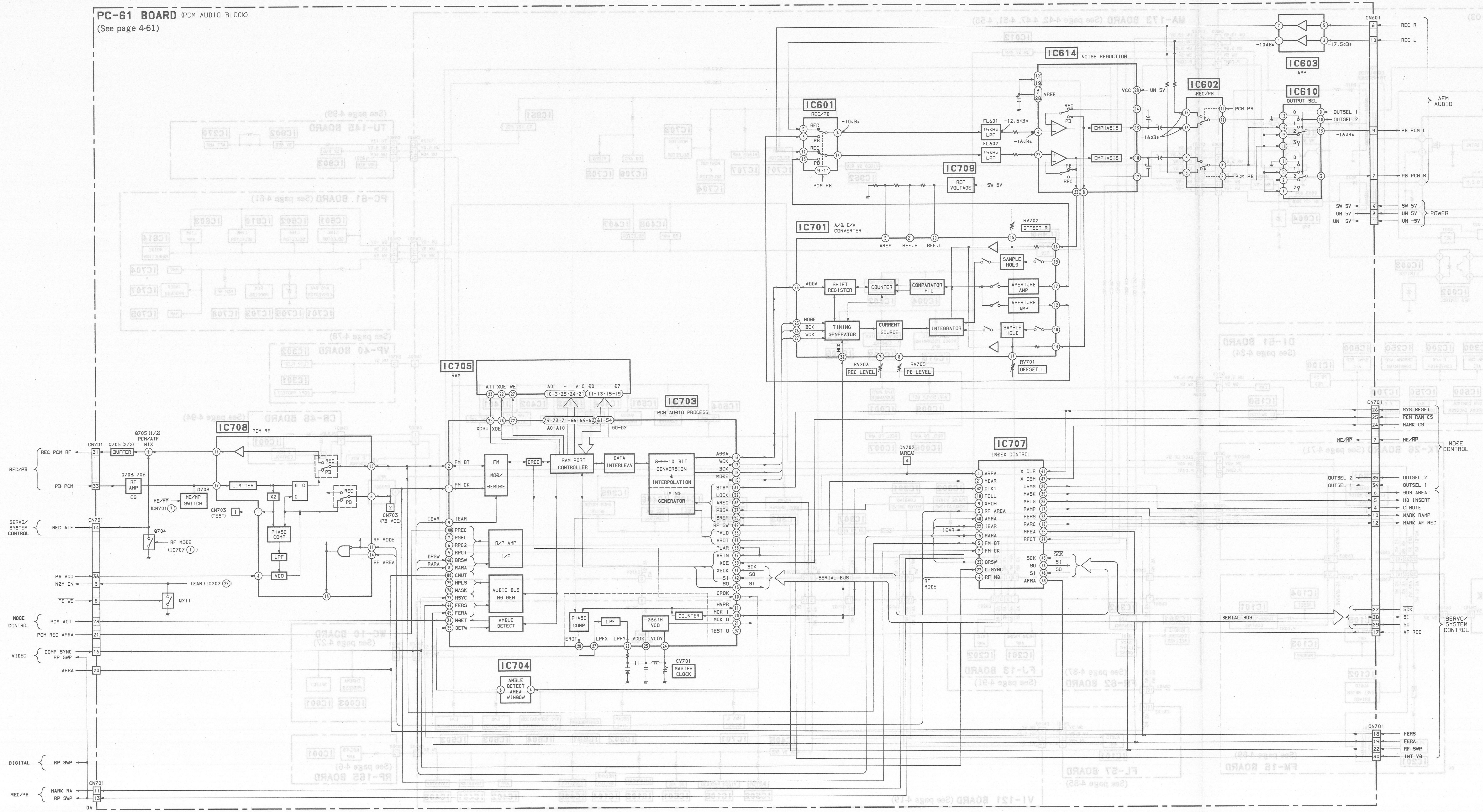
- The boards which signals only pass through may be omitted.


MA-173 BOARD (AFM AUDIO BLOCK)
(See page 4-42, 4-47, 4-51, 4-55)
FL-57 BOARD
(See page 4-85)
J103
LINE IN2
L
AUDIO
R
IC101
LINE2 BUFFER
CN101
VI-121 BOARD
(See page 4-19)
CN107
CN104
CN105
LINE IN1
L
AUDIO
R
J801
IC401
LINE1 BUFFER
IC402
LINE1/2 SELECTOR
LINE1
LINE2
IC403
MIC MIX AMP
IC404
INPUT SELECT
IC406
PCM REC VR AMP
VCA
IC408
AFM/PCM MIX AMP
Q403
RFU801
RFU
RF OUT MONO
LINE OUT1
L
AUDIO
R
LINE OUT2
L
AUDIO
R
FJ-13 BOARD
(See page 4-91)
Q250
REG
IC202
MIC AMP
AGC
Q201-203
J203
MIC
CN201
CN502
INSEL1 IC003 (36)
INSEL2 IC003 (35)
TU-145 BOARD
(See page 4-99)
CN901
UHF/VHF AUDIO
L
R
SAP AUDIO
CN601
TU IN L
TU IN R
CN002
REC LEVEL (TO FM)
L/R BALANCE (TO FM)
PCM PB
AFM PB
IC407
AFM OUTPUT SELECTOR
AFM MIX IC001 (1)
AFM MUTE IC003 (72)
(See page 4-71)
TK-26 BOARD
(See page 4-69)
FM-16 BOARD
CN001
CN501
CN503
CN101
LEVEL METER
FJ-13 BOARD
(See page 4-91)
CN502
CN201
IC201
HEAD PHONES AMP
RV201
PHONE LEVEL
J202
PHONES
CN002
MIX DC (FM)
IC501
AFM PROCESS
HP OUT
LINE OUT
SAP AUDIO
REC AFM
INPUT SEL
AGC
VCA
OUTPUT SEL
IC504
VOICE BOOST
Q507
MUTE
ST/MONO
Q512, 513
Q514, 515, 516
SW
Q407
VB ON IC001 (21)
L+R
L-R
Q504
PB AFM
FL501
1.5MHz BPF
1.7MHz BPF
FL502
Q508
Q509
MATRIX
NR
Q506
NOISE FILTER
AFM MODE DET IC003 (51)
AFM MODE IC003 (83)
AFM OUTSEL IC003 (82)
AUDIO PB IC003 (84)
SP/LP (NTSC) IC003 (8)
SAP/MAIN IC002 (11)
1.5MHz
1.7MHz
REC AFM
Q501, 502, 503
1.5MHz MODEM
1.7MHz MODEM
RV902
DEV 1.7MHz
RV901
DEV 1.5MHz
IC502
AFM PLL
1.5M PLL
1.7M PLL
CN005
Fsc (VI)
RP-165 BOARD
(See page 4-6)
CN002
PB RF
REC RF
PB PCM
REC PCM
NZM
VI-121 BOARD
(See page 4-19)
CN105
CN103
CN101
CN106
CN104
VIDEO Y/C
CN010
CN009
CN701
NZM
REC PCM
PCM PB
04
PC-61 BOARD
(PCM AUDIO BLOCK)
(See page 4-61)
CN501
CN601
PCM PB
PB SWP
RP SWP

	INSEL	1	2
	SAT	H	H
	LINE 1	H	L
	LINE 2	L	H
	TUNER	L	L
	OUTSEL	1	2
PCM	ST	H	H
	MAIN	H	L
	SUB	L	H
	MUTE	L	L
	OUTSEL	3	4
MONITOR	ST	H	H
	MAIN	H	L
	SUB	L	H
	MONTOR OFF	L	L
	AFM	MIX	MUTE
	MUTE	H	H
	MIX	H	L
	MUTE	L	H
	AFM ONLY	L	L
	AFM MODE	REC/EE	PB
	ST	H	M
	BIL	M	M
	MONO	L	M
	AFM OUTSEL		
	MAIN/MONO	H	
	SUB	M	
	ST	L	

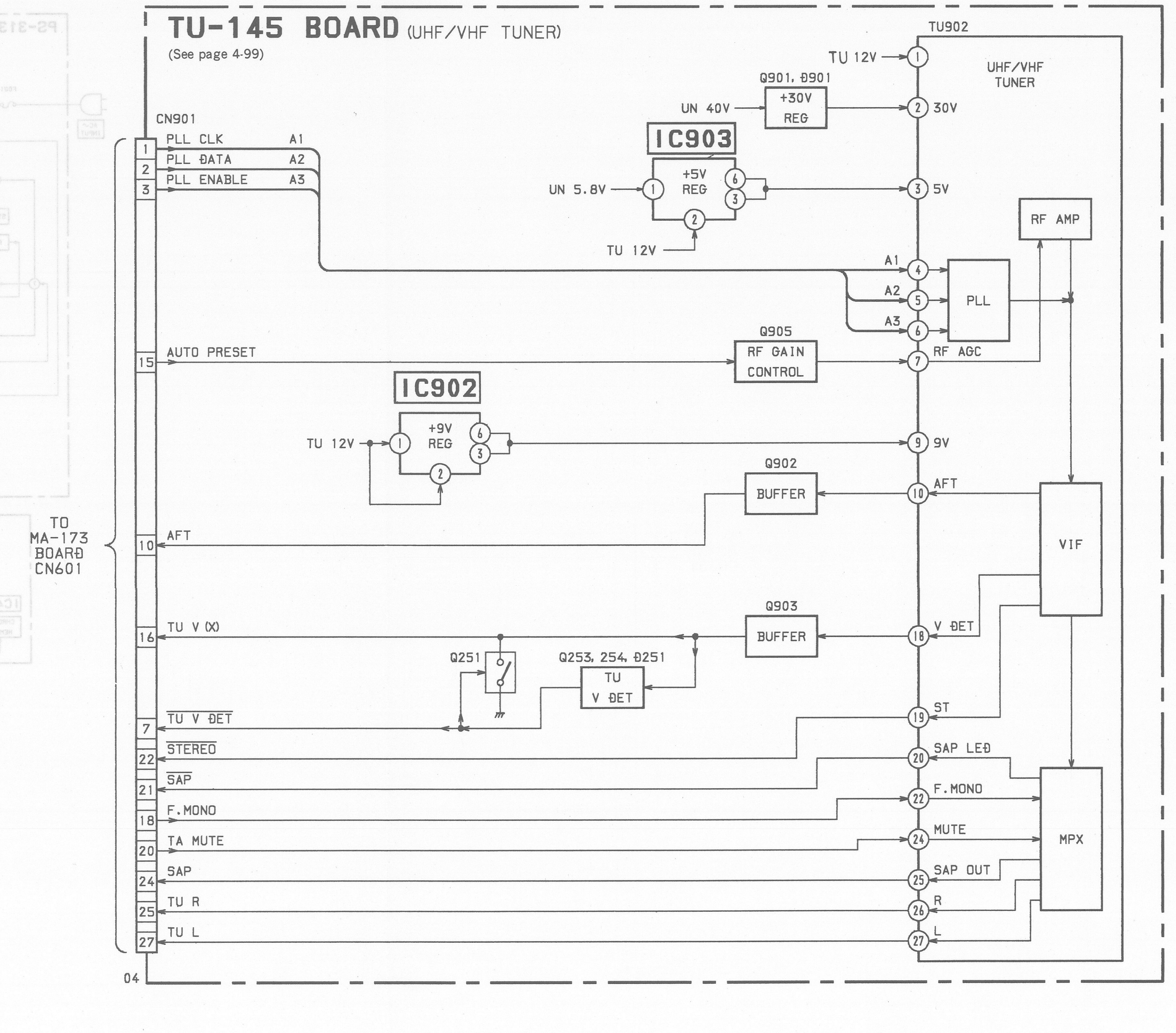
3-8. PCM AUDIO BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.


PC-61 BOARD (PCM AUDIO BLOCK)
(See page 4-61)
IC601 REC/PB
REC
PB
-10dBs
PCM PB
FL601 15kHz LPF
FL602 15kHz LPF
-12.5dBs
-16dBs
IC614 NOISE REDUCTION
VREF
VCC
UN 5V
EMPHASIS
IC709 REF VOLTAGE
SW 5V
IC603 AMP
-10dBs
-17.5dBs
IC602 REC/PB
IC610 OUTPUT SEL
OUTSEL 1
OUTSEL 2
CN601
REC R
REC L
PB PCM L
PB PCM R
AFM AUDIO
SW 5V
UN 5V
UN -5V
POWER
IC701 A/D, D/A CONVERTER
AREF
REF.H
REF.L
RV702 OFFSET R
SAMPLE HOLD
APERTURE AMP
SHIFT REGISTER
COUNTER
COMPARATOR H.L
ADDA
MODE
BCK
WCK
TIMING GENERATOR
CURRENT SOURCE
INTEGRATOR
MCK
RV703 REC LEVEL
RV705 PB LEVEL
RV701 OFFSET L
IC705 RAM
A11 XOE WE
A0 - A10 D0 - D7
IC703 PCM AUDIO PROCESS
XCSO XOE
A0-A10
D0-D7
IC708 PCM RF
Q705 (1/2) PCM/ATF MIX
Q705 (2/2) BUFFER
Q703, 706 RF AMP EQ
Q708 ME/MP SWITCH
ME/MP (CN701 ⑦)
LIMITER
X2
PHASE COMP
LPF
VCO
CN703 (TEST)
CN703 (PB VCO)
RF MODE
RF AREA
Q704
RF MODE (IC707 ④)
IEAR (IC707 ㉒)
Q711
CN701
REC/PB
REC PCM RF
PB PCM
SERVO/ SYSTEM CONTROL
REC ATF
PB VCO
NZM ON
FE WE
MODE CONTROL
PCM ACT
PCM REC AFRA
VIDEO
COMP SYNC
RP SWP
AFRA
DIGITAL
MARK RA
FM DT
FM CK
FM MOD/ DEMODE
CRCC
RAM PORT CONTROLLER
DATA INTERLEAV
8↔10 BIT CONVERSION & INTERPOLATION
TIMING GENERATOR
IEAR
PREC
PSEL
RPC2
RPC1
DRSW
RARA
CMUT
HPLS
MASK
HSYC
FERS
FERA
MDET
DETW
R/P AMP I/F
AUDIO BUS HD GEN
AMBLE DETECT
STBY
LOCK
AREC
PBSV
SREF
RF SW
PVLD
AROT
PLAR
ARIN
XCE
XSCK
SI
SO
SCK
CROK
HVPR
MCK I
MCK O
TEST O
COUNTER
PHASE COMP
LPF
736fH VCO
EROT
LPFX
LPFY
VCOX
VCOY
CV701 MASTER CLOCK
IC704 AMBLE DETECT AREA WINDOW
SERIAL BUS
CN702 (AREA)
IC707 INDEX CONTROL
AREA
MDAR
CLK1
FOLL
XFOH
RF AREA
AFRA
IEAR
RARA
FM DT
FM CK
DRSW
C SYNC
RF MD
RF MODE
X CLR
X CEM
CRMM
MASK
MPLS
RAMP
FERS
RARC
MFEA
RFCT
SCK
SO
SI
AFRA
SYS RESET
PCM RAM CS
MARK CS
ME/MP
MODE CONTROL
OUTSEL 2
OUTSEL 1
DUB AREA
HD INSERT
C MUTE
MARK RAMP
MARK AF REC
SERVO/ SYSTEM CONTROL
AF REC
FERS
FERA
RF SWP
INT VD
04

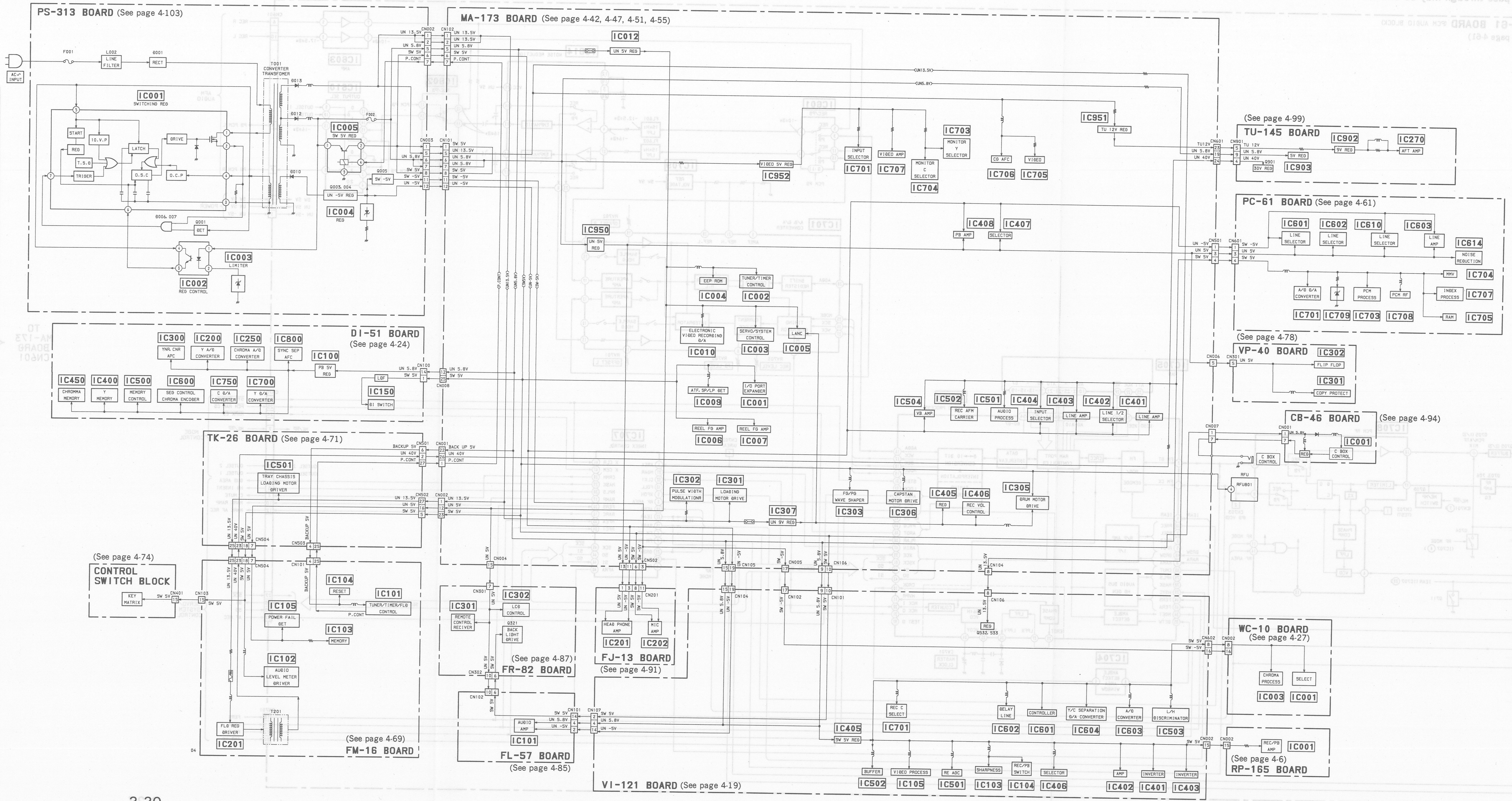
3-9. TUNER BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.


TU-145 BOARD (UHF/VHF TUNER)
(See page 4-99)
TU902
TU 12V
UHF/VHF TUNER
Q901, D901
+30V REG
UN 40V
30V
IC903
+5V REG
UN 5.8V
TU 12V
5V
RF AMP
CN901
PLL CLK
PLL DATA
PLL ENABLE
A1
A2
A3
PLL
AUTO PRESET
Q905 RF GAIN CONTROL
RF AGC
IC902
+9V REG
TU 12V
9V
Q902 BUFFER
AFT
VIF
TO MA-173 BOARD CN601
AFT
TU V (X)
Q903 BUFFER
V DET
Q251
Q253, 254, D251
TU V DET
TU V DET
ST
STEREO
SAP LED
SAP
F.MONO
TA MUTE
MUTE
MPX
SAP
SAP OUT
TU R
R
TU L
L
04

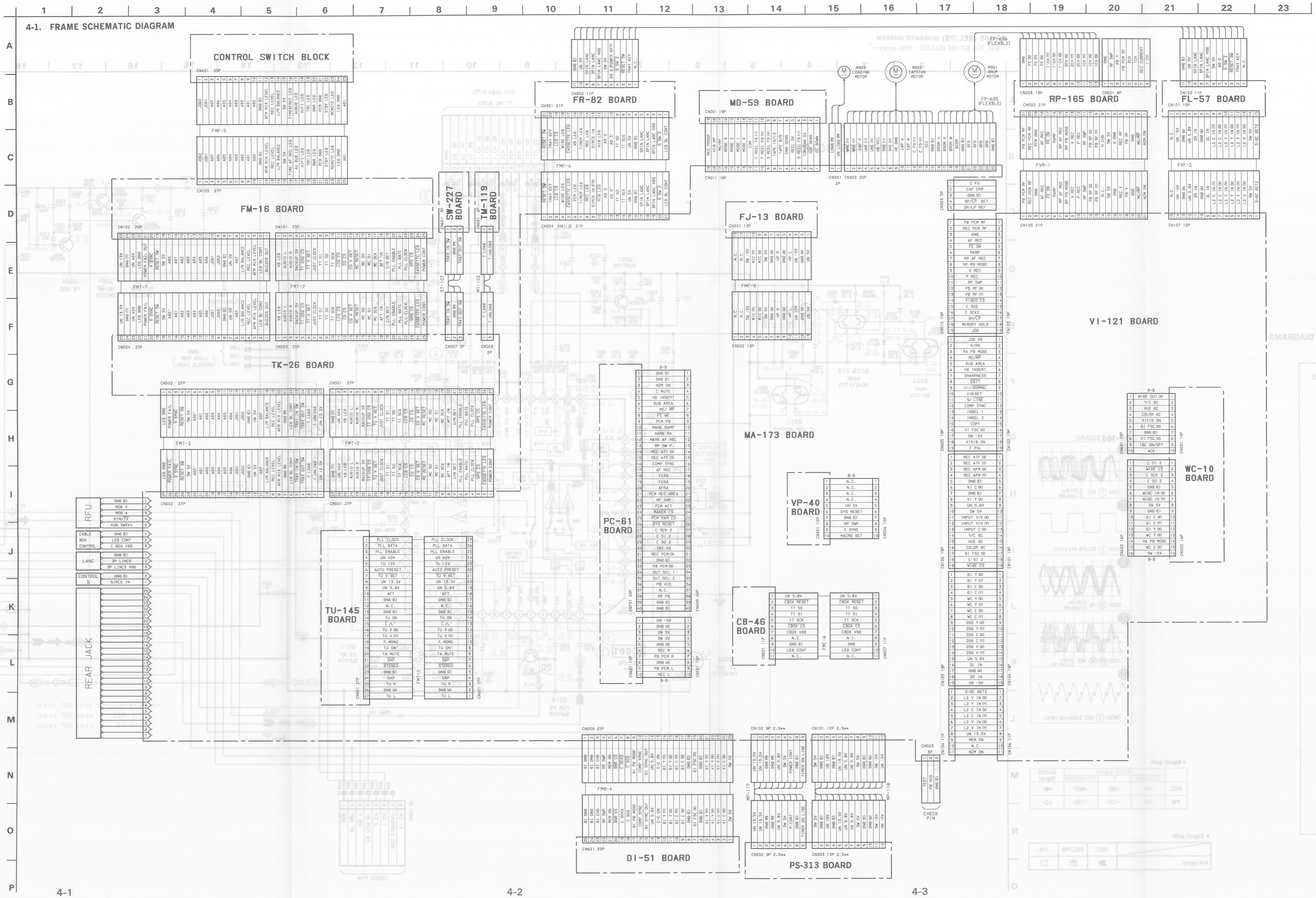
3-10. POWER BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.


PS-313 BOARD (See page 4-103)
AC INPUT
F001
L002 LINE FILTER
D001 RECT
T001 CONVERTER TRANSFOMER
D013
D012
D010
F002
IC001 SWITCHING REG
START
REG
10.V.P
T.S.D
TRIGER
LATCH
O.S.C
DRIVE
O.C.P
D006, 007
Q001 DET
IC002 REG CONTROL
IC003 LIMITER
IC005 SW 5V REG
Q005 SW -5V
Q003, 004 UN -5V REG
IC004 REG
CN002
CN003
UN 13.5V
UN 5.8V
SW 5V
P.CONT
SW -5V
UN -5V
MA-173 BOARD (See page 4-42, 4-47, 4-51, 4-55)
CN102
CN101
IC012 UN 5V REG
IC952 VIDEO 5V REG
IC701 INPUT SELECTOR
IC707 VIDEO AMP
IC704 MONITOR C SELECTOR
IC703 MONITOR Y SELECTOR
IC706 CG AFC
IC705 VIDEO
IC951 TU 12V REG
IC950 UN 5V REG
IC408 PB AMP
IC407 SELECTOR
IC004 EEP ROM
IC002 TUNER/TIMER CONTROL
IC010 ELECTRONIC VIDEO RECORDING D/A
IC003 SERVO/SYSTEM CONTROL
IC005 LANC
IC009 ATF, SP/LP DET
IC001 I/O PORT EXPANDER
IC006 REEL FG AMP
IC007 REEL FG AMP
IC504 VB AMP
IC502 REC AFM CARRIER
IC501 AUDIO PROCESS
IC404 INPUT SELECTOR
IC403 LINE AMP
IC402 LINE 1/2 SELECTOR
IC401 LINE AMP
IC302 PULSE WIDTH MODULATIONR
IC301 LOADING MOTOR DRIVE
IC307 UN 9V REG
IC303 FG/PG WAVE SHAPER
IC306 CAPSTAN MOTOR DRIVE
IC405 REG
IC406 REC VOL CONTROL
IC305 DRUM MOTOR DRIVE
RFU RFU801
C BOX CONTROL
DI-51 BOARD (See page 4-24)
IC300 YNR, CNR APC
IC200 Y A/D CONVERTER
IC250 CHROMA A/D CONVERTER
IC800 SYNC SEP AFC
IC100 PB 5V REG
IC450 CHROMMA MEMORY
IC400 Y MEMORY
IC500 MEMORY CONTROL
IC600 SEG CONTROL CHROMA ENCODER
IC750 C D/A CONVERTER
IC700 Y D/A CONVERTER
IC150 DI SWITCH
LDF
CN100
CN008
TK-26 BOARD (See page 4-71)
IC501 TRAY CHASSIS LOADING MOTOR DRIVER
BACKUP 5V
UN 40V
CN501
CN001
CN502
CN002
CN503
CN504
(See page 4-74)
CONTROL SWITCH BLOCK
KEY MATRIX
CN401
CN103
FM-16 BOARD (See page 4-69)
IC104 RESET
IC101 TUNER/TIMER/FLD CONTROL
IC105 POWER FAIL DET
IC103 MEMORY
IC102 AUDIO LEVEL METER DRIVER
IC201 FLD REG DRIVER
T201
FR-82 BOARD (See page 4-87)
IC301 REMOTE CONTROL RECIVER
IC302 LCD CONTROL
Q321 BACK LIGHT DRIVE
FL-57 BOARD (See page 4-85)
IC101 AUDIO AMP
FJ-13 BOARD (See page 4-91)
IC201 HEAD PHONE AMP
IC202 MIC AMP
VI-121 BOARD (See page 4-19)
IC405 SW 5V REG
IC701 REC C SELECT
IC602 DELAY LINE
IC601 CONTROLLER
IC604 Y/C SEPARATION D/A CONVERTER
IC603 A/D CONVERTER
IC503 L/H DISCRIMINATOR
IC502 BUFFER
IC105 VIDEO PROCESS
IC501 RE AGC
IC103 SHARPNESS
IC104 REC/PB SWITCH
IC406 SELECTOR
IC402 AMP
IC401 INVERTER
IC403 INVERTER
Q532, 533 REG
TU-145 BOARD (See page 4-99)
IC902 9V REG
IC270 AFT AMP
5V REG
Q901 30V REG
IC903
PC-61 BOARD (See page 4-61)
IC601 LINE SELECTOR
IC602 LINE SELECTOR
IC610 LINE SELECTOR
IC603 LINE AMP
IC614 NOISE REDUCTION
IC704 MMV
A/D D/A CONVERTER
PCM PROCESS
PCM RF
IC707 INDEX PROCESS
IC705 RAM
IC701
IC709
IC703
IC708
VP-40 BOARD (See page 4-78)
IC302 FLIP FLOP
IC301 COPY PROTECT
CB-46 BOARD (See page 4-94)
IC001 C BOX CONTROL
REG
WC-10 BOARD (See page 4-27)
IC003 CHROMA PROCESS
IC001 SELECT
RP-165 BOARD (See page 4-6)
IC001 REC/PB AMP

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM


CONTROL SWITCH BLOCK
FM-16 BOARD
SW-227 BOARD
TM-119 BOARD
TK-26 BOARD
FR-82 BOARD
MD-59 BOARD
FJ-13 BOARD
MA-173 BOARD
VP-40 BOARD
PC-61 BOARD
CB-46 BOARD
TU-145 BOARD
RP-165 BOARD
FL-57 BOARD
VI-121 BOARD
WC-10 BOARD
DI-51 BOARD
PS-313 BOARD
RFU
CABLE BOX CONTROL
LANC
CONTROL S
REAR JACK
M903 LOADING MOTOR
M902 CAPSTAN MOTOR
M901 DRUM MOTOR
FP-696 (FLEXBLE)
FP-695 (FLEXBLE)
CHECK PIN

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is is printed in each block.)

● For printed wiring boards.

- ▒ : Pattern from the side which enables seeing.
- Circled numbers refer to waveforms.

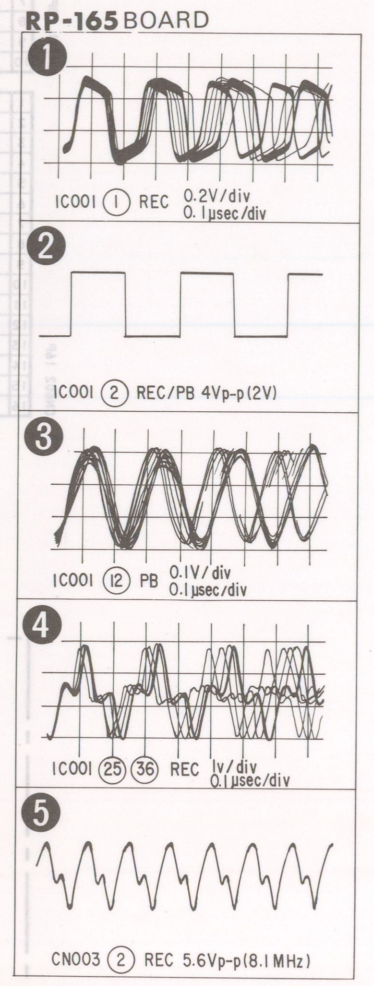
● For schematic diagram.

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
- Chip resistor are 1/8W or 1/10W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repair.
- ━ : B + Line.
- - - - : B – Line.
- ⇨ : IN/OUT direction of (+, –) B line.
- Circled numbers refer to waveforms.
- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

RP-165 BOARD



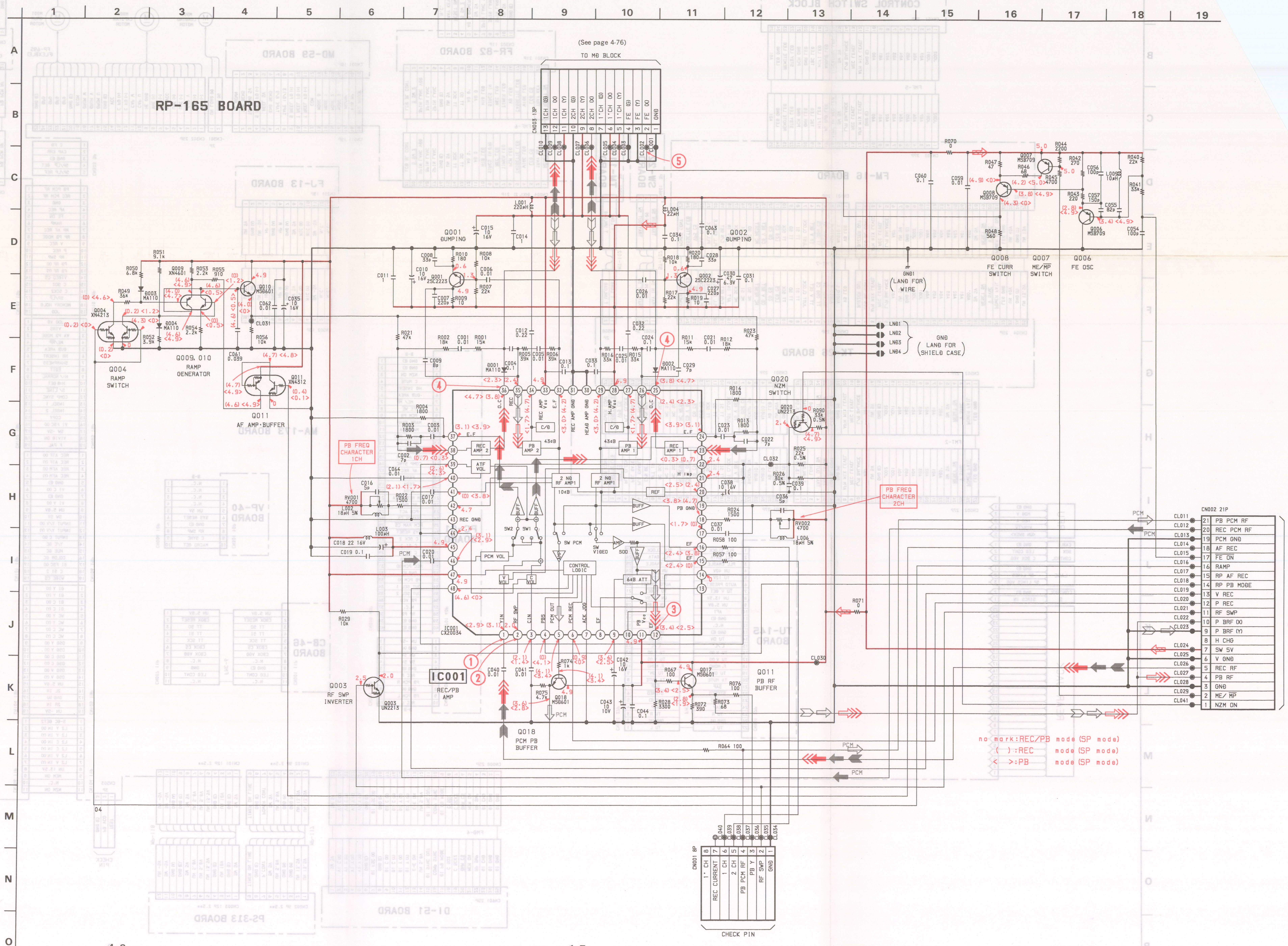
● **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	➡
PB	⇨	⇨≫	⇨⋙	⇨

● **Signal path**

	REC	REC/PB	PB
Ref.signal	➤	❯	〉

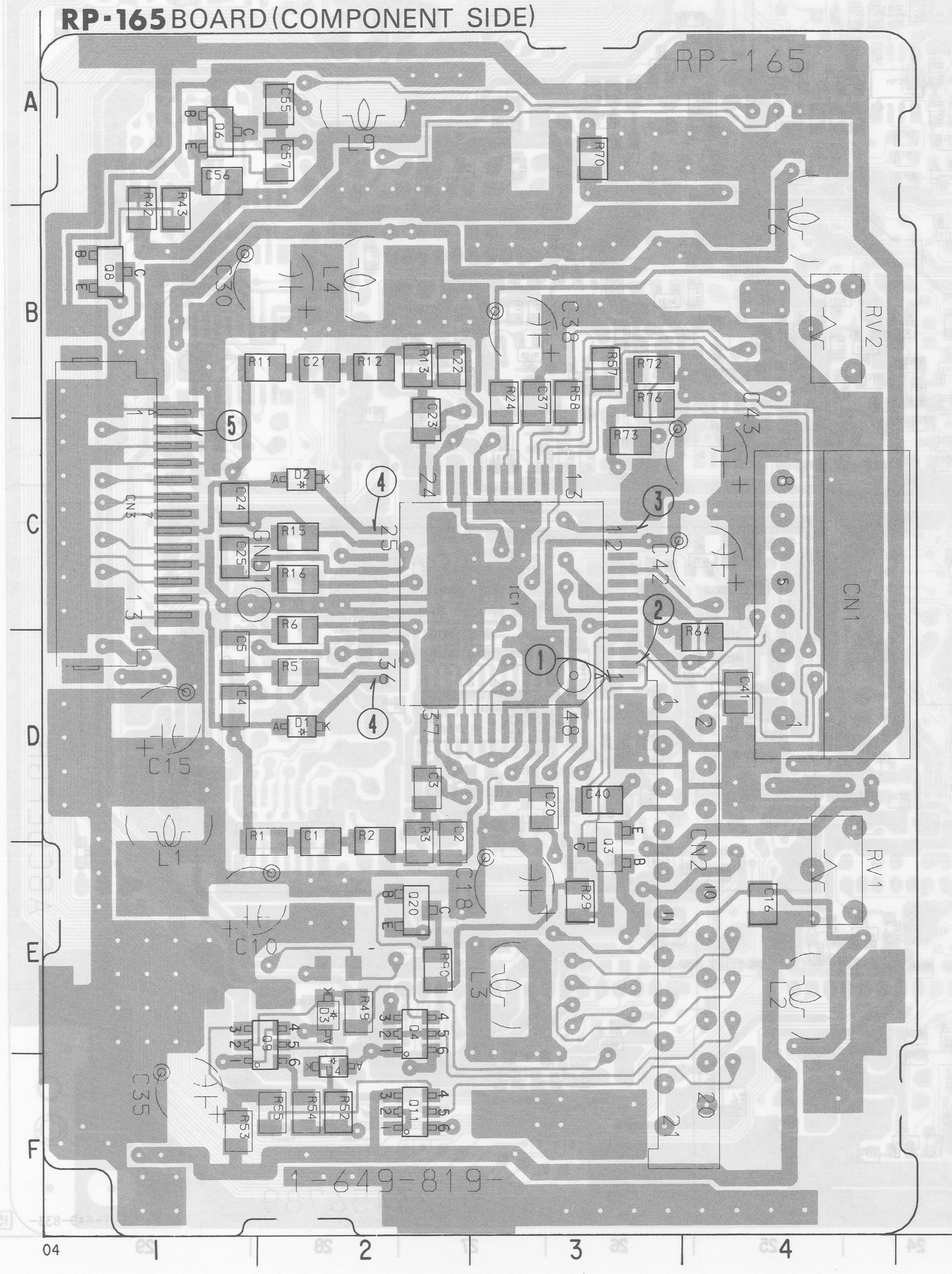
RP-165 (REC/PB) SCHEMATIC DIAGRAM
—Ref. No. RP-165 BOARD : 1000 series—



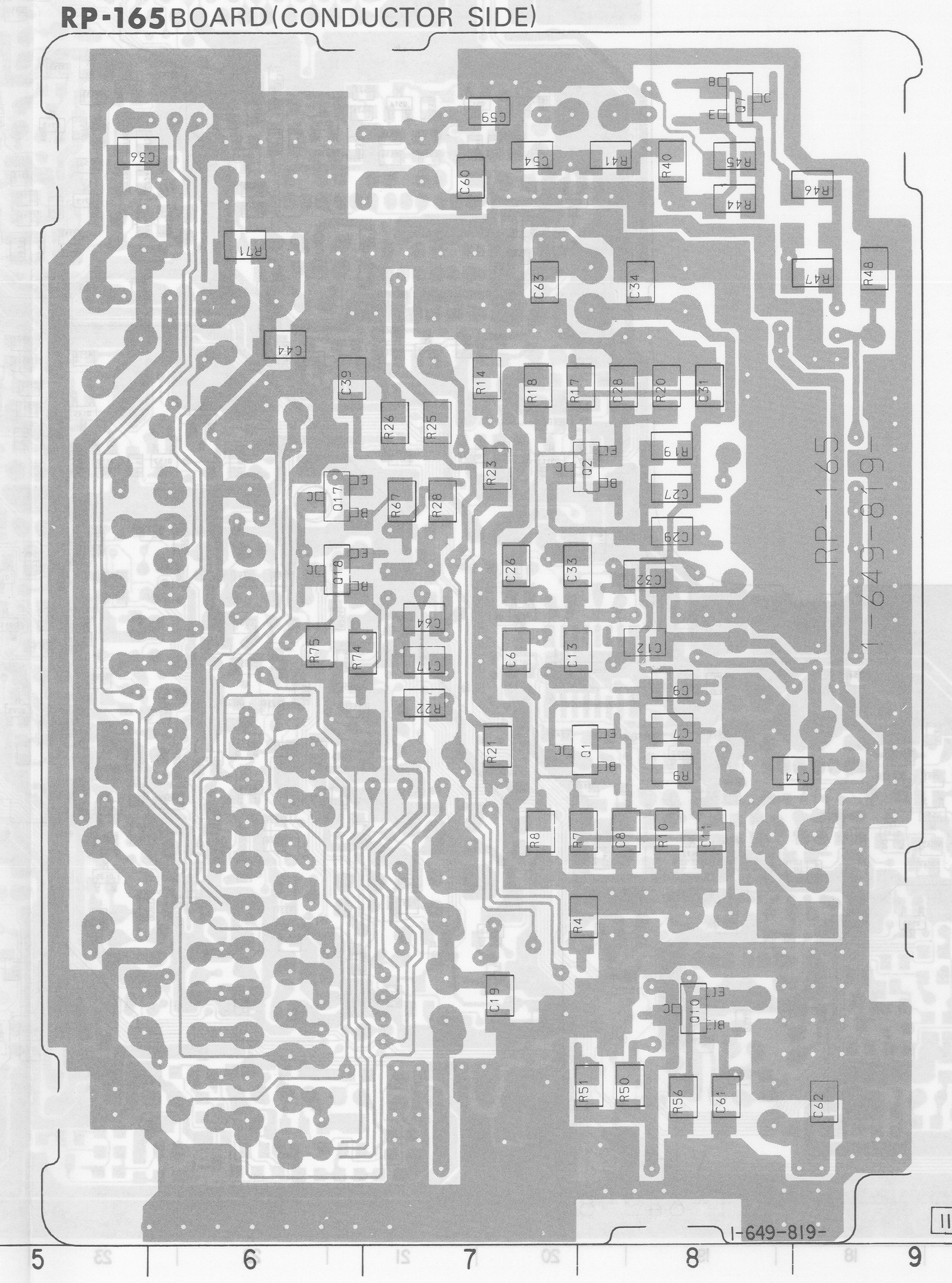
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
RP-165 BOARD
(See page 4-76)
TO MD BLOCK
CN003 13P
1CH (G)
1CH (X)
1CH (Y)
2CH (G)
2CH (Y)
2CH (X)
1'CH (G)
1'CH (X)
1'CH (Y)
FE (G)
FE (Y)
FE (X)
GND
Q001 BUMPING
Q002 BUMPING
Q004 RAMP SWITCH
Q009, 010 RAMP GENERATOR
Q011 AF AMP·BUFFER
Q020 NZM SWITCH
Q008 FE CURR SWITCH
Q007 ME/MP SWITCH
Q006 FE OSC
GND (LAND FOR WIRE)
GND (LAND FOR SHIELD CASE)
PB FREQ CHARACTER 1CH
PB FREQ CHARACTER 2CH
IC001 CX20034
IC001
REC/PB AMP
CONTROL LOGIC
6dB ATT
Q003 RF SWP INVERTER
Q003 UN2213
Q018 PCM PB BUFFER
Q018 MSD601
Q017 MSD601
Q011 PB RF BUFFER
CN002 21P
21 PB PCM RF
20 REC PCM RF
19 PCM GND
18 AF REC
17 FE ON
16 RAMP
15 RP AF REC
14 RP PB MODE
13 V REC
12 P REC
11 RF SWP
10 P BRF (X)
9 P BRF (Y)
8 H CHG
7 SW 5V
6 V GND
5 REC RF
4 PB RF
3 GND
2 ME/MP
1 NZM ON
TO VI-121 BOARD CN105 (See page 4-19)
CN001 8P
8 1' CH
7 REC CURRENT
6 1 CH
5 2 CH
4 PB PCM RF
3 PB Y
2 RF SWP
1 GND
CHECK PIN
PCM
no mark:REC/PB mode (SP mode)
( ):REC mode (SP mode)
< >:PB mode (SP mode)

RP-165 (REC/PB) PRINTED WIRING BOARD
—Ref. No. RP-165 BOARD: 1000 series—

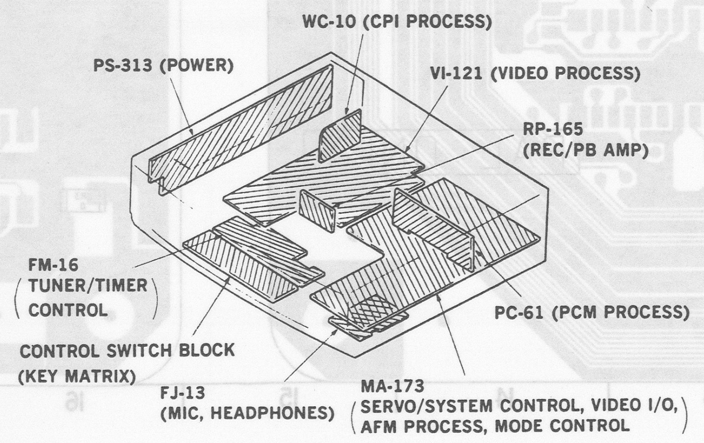
RP-165 BOARD (COMPONENT SIDE)


RP-165
A
B
C
D
E
F
1
2
3
4
CN1
RV1
RV2
1-649-819-
04

RP-165 BOARD (CONDUCTOR SIDE)

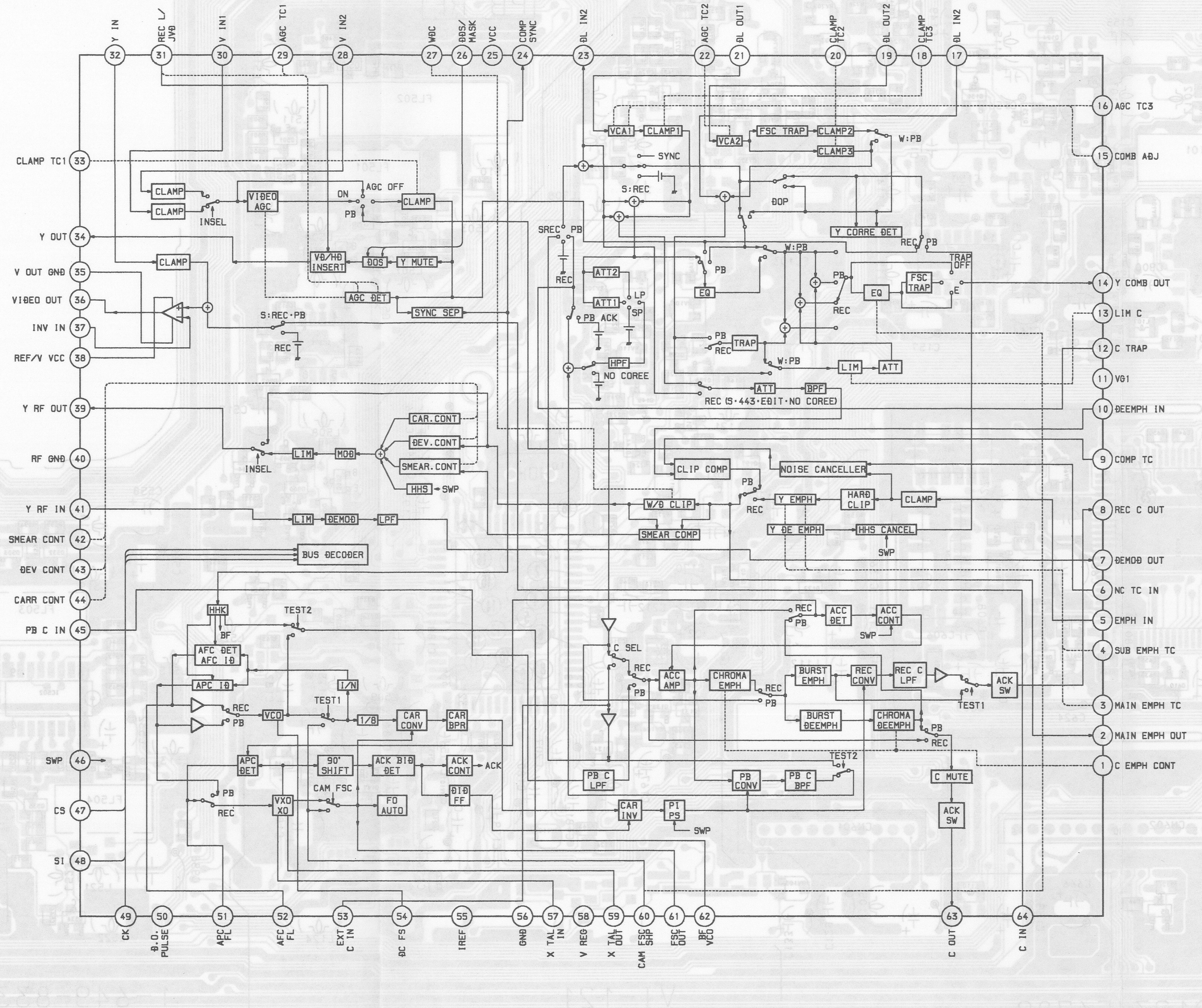

RP-165
1-649-819-
5
6
7
8
9
11

RP-165 BOARD	
CN001	C-4
CN002	E-4
CN003	C-1
D001	D-2
D002	C-2
D003	E-2
D004	F-2
IC001	C-3
Q001	D-8
Q002	C-8
Q003	E-3
Q004	E-2
Q006	A-1
Q007	A-8
Q008	B-1
Q009	E-2
Q010	E-8
Q011	F-2
Q017	C-6
Q018	C-6
Q020	E-2


PS-313 (POWER)
WC-10 (CPI PROCESS)
VI-121 (VIDEO PROCESS)
RP-165 (REC/PB AMP)
FM-16 (TUNER/TIMER CONTROL)
CONTROL SWITCH BLOCK (KEY MATRIX)
FJ-13 (MIC, HEADPHONES)
MA-173 (SERVO/SYSTEM CONTROL, VIDEO I/O, AFM PROCESS, MODE CONTROL)
PC-61 (PCM PROCESS)

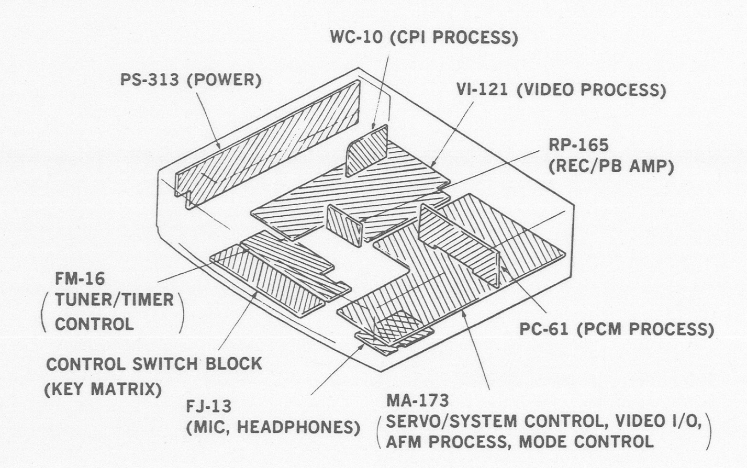
• VI-121 BOARD IC BLOCK DIAGRAMS

IC105 CXA1810
VIDEO PROCESS


32 Y IN
31 REC L/JVD
30 V IN1
29 AGC TC1
28 V IN2
27 WDC
26 DDS/MASK
25 VCC
24 COMP SYNC
23 DL IN2
22 AGC TC2
21 DL OUT1
20 CLAMP TC2
19 DL OUT2
18 CLAMP TC3
17 DL IN2
16 AGC TC3
15 COMB ADJ
14 Y COMB OUT
13 LIM C
12 C TRAP
11 VG1
10 DEEMPH IN
9 COMP TC
8 REC C OUT
7 DEMOD OUT
6 NC TC IN
5 EMPH IN
4 SUB EMPH TC
3 MAIN EMPH TC
2 MAIN EMPH OUT
1 C EMPH CONT
CLAMP TC1 33
Y OUT 34
V OUT GND 35
VIDEO OUT 36
INV IN 37
REF/V VCC 38
Y RF OUT 39
RF GND 40
Y RF IN 41
SMEAR CONT 42
DEV CONT 43
CARR CONT 44
PB C IN 45
SWP 46
CS 47
SI 48
49 CK
50 D.O. PULSE
51 APC FL
52 AFC FL
53 EXT C IN
54 DC FS
55 IREF
56 GND
57 X TAL IN
58 V REG
59 X TAL OUT
60 CAM FSC SHP
61 FSC OUT
62 BF VCO
63 C OUT
64 C IN
CLAMP
VIDEO AGC
Y MUTE
AGC DET
SYNC SEP
VCA1
CLAMP1
VCA2
FSC TRAP
CLAMP2
CLAMP3
W:PB
SYNC
S:REC
DOP
Y CORR DET
ATT
EQ
FSC TRAP
LIM
BPF
REC IS-443-E@IT:NO COREC
CAR CONT
DEV CONT
SMEAR CONT
SWP
BUS DECODER
CLIP COMP
NOISE CANCELLER
W/B CLIP
Y DE EMPH
HARD CLIP
CLAMP
SMEAR COMP
NOISE CANCEL
ACC DET
ACC CONT
AFC DET
APC ID
TEST1
TEST2
CAR CONV
CAR BPF
ACK ID/B DET
ACK
90° SHIFT
CAM FSC
VXO XO
FO AUTO
PB C LPF
CAR INV
PI PS
C SEL
ACC AMP
CHROMA EMPH
BURST EMPH
REC CONT
REC C LPF
ACK SW
BURST DEEMPH
CHROMA DEEMPH
PB CONV
PB C BPF
C MUTE
REC
PB

VI-121 BOARD

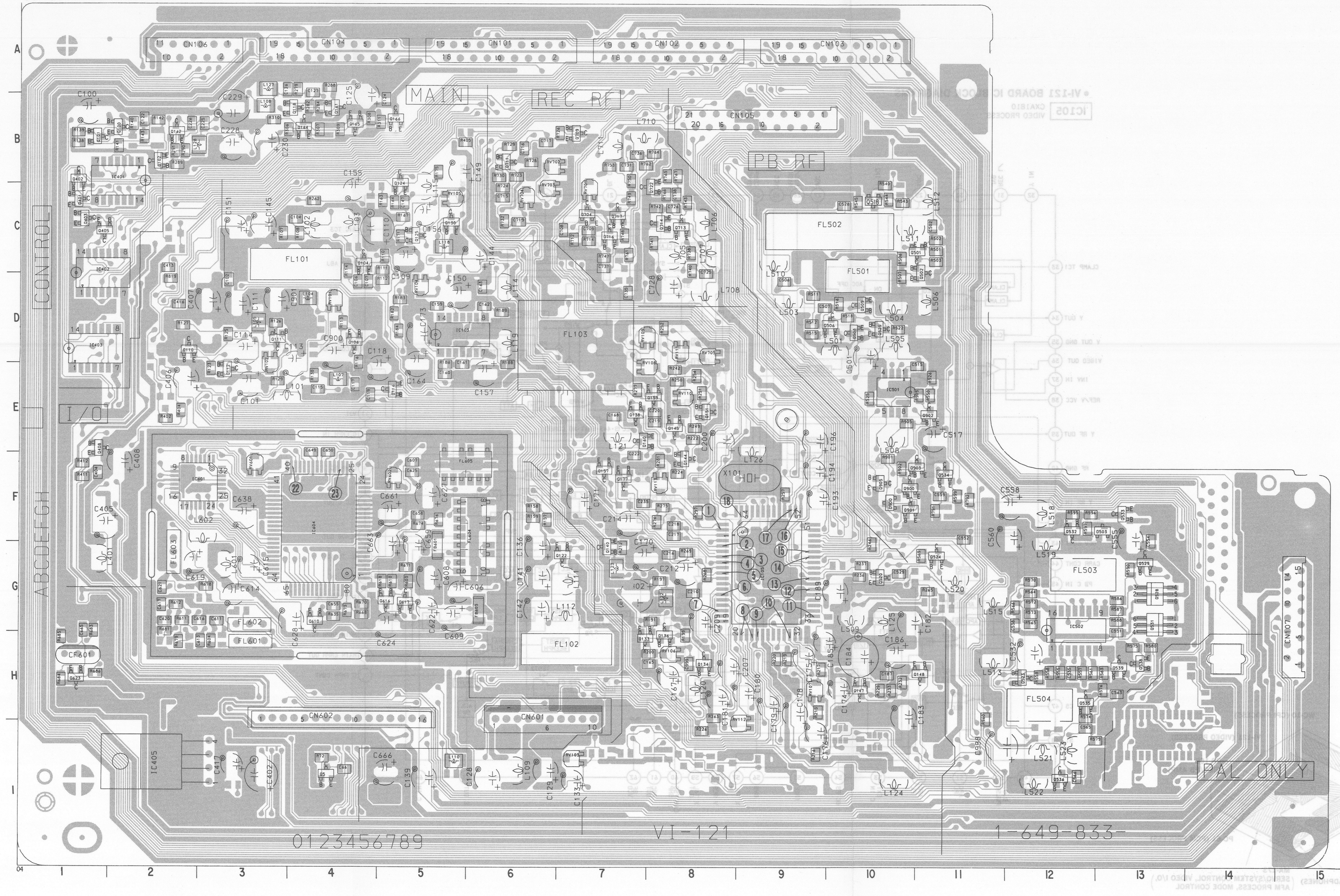
CN101	A-6
CN102	A-8
CN103	A-10
CN104	A-4
CN105	B-9
CN106	A-2
CN107	G-15
CN601	I-7
CN602	I-4
D101	D-25
D102	H-21
D104	F-24
D502	G-19
D503	F-13
D601	G-26
D900	F-10
IC103	D-5
IC104	E-25
IC105	G-9
IC401	B-2
IC402	D-1
IC403	D-1
IC405	I-2
IC406	D-29
IC501	E-10
IC502	H-12
IC503	F-20
IC601	F-2
IC602	G-28
IC603	G-27
IC604	G-4
IC701	B-24
Q004	I-26
Q005	I-4
Q100	B-2
Q101	B-1
Q102	B-2
Q103	C-27
Q104	C-4
Q105	D-27
Q106	D-4
Q107	D-26
Q109	D-26
Q110	D-2
Q111	D-3
Q112	E-3
Q113	E-27
Q114	E-26
Q115	D-26
Q116	E-5
Q118	B-4
Q119	H-24
Q120	I-24
Q121	I-24
Q122	G-7
Q123	F-24
Q124	C-5
Q125	C-5
Q126	C-26
Q127	D-25
Q128	B-26
Q129	C-26
Q130	C-5
Q131	D-26
Q132	D-25
Q133	H-8
Q134	H-8
Q135	H-23
Q136	H-8
Q137	G-23
Q138	E-7
Q139	E-24
Q140	G-7
Q141	D-24
Q142	E-24
Q143	G-24
Q144	F-8
Q145	E-8
Q146	H-20
Q147	H-10
Q148	H-11
Q149	E-23
Q150	E-23
Q151	E-8
Q152	E-23
Q153	G-22
Q154	G-22
Q155	G-22
Q156	F-24
Q157	F-7
Q158	F-23
Q159	E-8
Q160	E-7
Q161	B-4
Q162	B-2
Q164	B-4
Q165	B-4
Q166	B-5
Q177	F-7
Q401	C-1
Q402	B-1
Q403	C-1
Q404	C-29
Q405	C-1
Q406	C-29
Q407	E-29
Q408	E-1
Q501	C-11
Q502	D-11
Q503	D-22
Q504	D-22
Q505	D-21
Q506	D-9
Q507	C-20
Q508	D-10
Q509	D-10
Q511	E-20
Q512	E-20
Q513	E-20
Q514	C-22
Q515	B-22
Q516	B-21
Q517	B-20
Q518	C-10
Q519	F-20
Q520	G-10
Q521	H-18
Q522	H-19
Q523	H-12
Q524	G-11
Q525	D-10
Q528	G-13
Q529	G-13
Q530	G-17
Q531	H-13
Q532	F-12
Q533	F-13
Q534	F-11
Q535	H-12
Q536	I-12
Q537	H-20
Q538	H-13
Q539	H-13
Q540	G-18
Q610	G-4
Q611	G-27
Q612	H-26
Q613	G-26
Q614	G-26
Q615	H-26
Q616	G-5
Q617	G-5
Q618	F-26
Q619	G-25
Q620	F-25
Q621	F-25
Q623	H-1
Q624	I-26
Q701	D-24
Q702	D-24
Q703	E-22
Q704	C-7
Q705	B-25
Q706	C-24
Q707	B-24
Q708	B-24
Q709	B-7
Q711	B-6
Q712	A-24
Q713	C-8
Q714	C-8
Q715	C-24
Q716	C-7
Q717	C-7
Q718	B-23
Q719	C-23
Q720	B-23
Q722	C-8
Q900	F-10
Q901	F-10
Q902	E-11
Q903	F-11
Q904	F-20
Q905	F-10
Q996	I-27


WC-10 (CPI PROCESS)
PS-313 (POWER)
VI-121 (VIDEO PROCESS)
RP-165 (REC/PB AMP)
FM-16 (TUNER/TIMER CONTROL)
CONTROL SWITCH BLOCK (KEY MATRIX)
PC-61 (PCM PROCESS)
FJ-13 (MIC, HEADPHONES)
MA-173 (SERVO/SYSTEM CONTROL, VIDEO I/O, AFM PROCESS, MODE CONTROL)

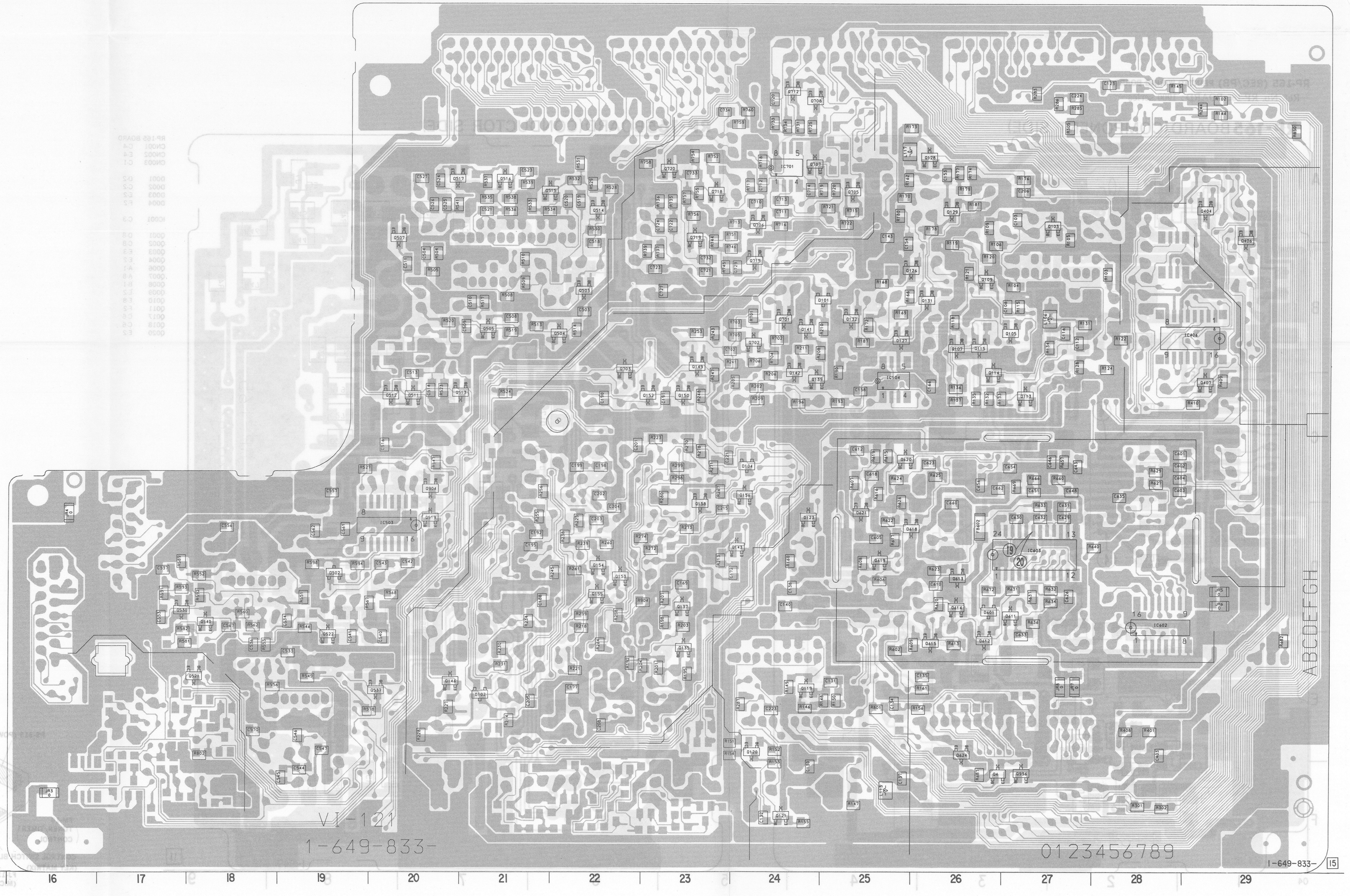
VI-121 (VIDEO PROCESS) PRINTED WIRING BOARD

—Ref. No. VI-121 BOARD : 2000 series—

VI-121 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
CN106
CN104
CN101
CN103
CN102
CN105
MAIN
REC RF
PB RF
CONTROL
I/O
FL101
FL102
FL103
FL501
FL502
FL503
FL504
CN601
CN602
IC405
PAL ONLY
0123456789
VI-121
1-649-833-
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

VI-121 BOARD (CONDUCTOR SIDE)

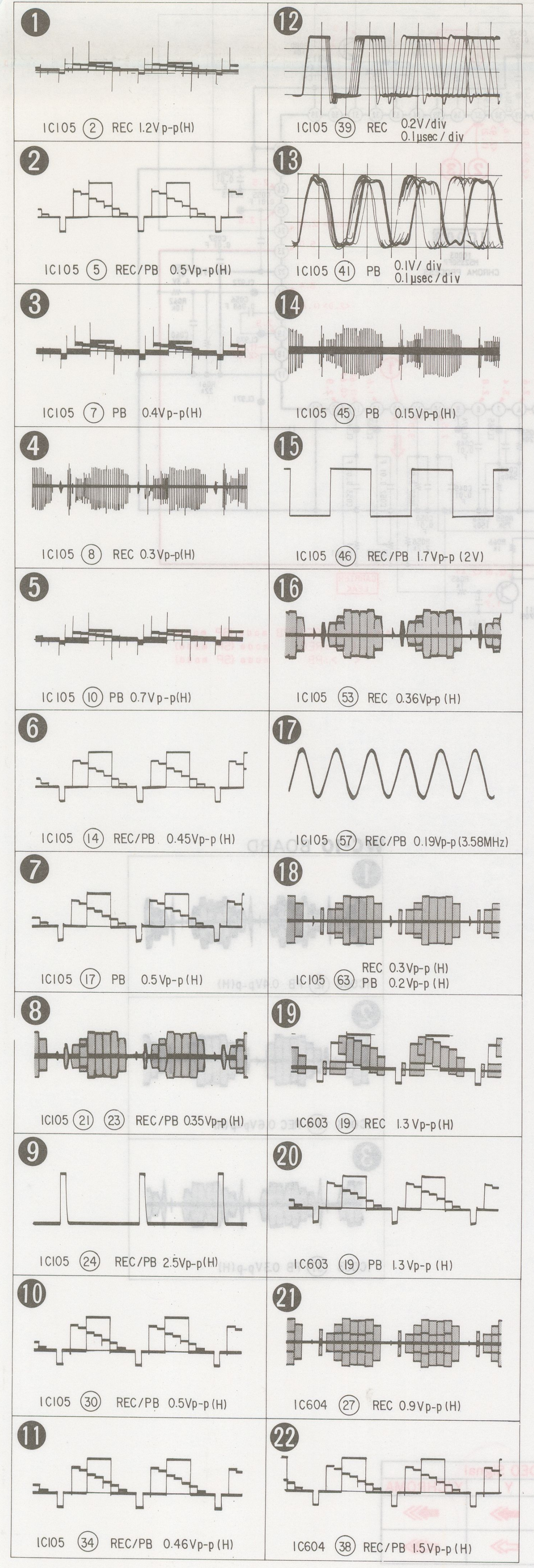

ABCDEFGH
VI-121
1-649-833-
0123456789
16
17
18
19
20
21
22
23
24
25
26
27
28
29

VI-121 (VIDEO PROCESS) SCHEMATIC DIAGRAM

—Ref. No. VI-121 BOARD : 2000 series—

- Refer to page 4-11 for IC block diagrams of IC105 on VI-121 board.

VI-121 BOARD



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
A
B
C
D
E
F
G
H
I
J
K
L
M
N
(See page 4-45)
(See page 4-44)
(See page 4-50)
(See page 4-50)
(See page 4-50)
(See page 4-8)
IC401
INVERTER
IC402
IC403
INVERTER
IC405
IC406
SELECTOR
IC501
IC502
IC503
IC105
VIDEO PROCESS
IC103
SHARPNESS
IC104
IC701
IC601
IC602
DELAY LINE
IC603
IC604
Y/C SEPARATION D/A CONVERTER
VI-121 BOARD (1/2)
VI-121 BOARD (2/2)
TO FL-57 BOARD CN101 (See page 4-85)
TO WC-10 BOARD CN002 (See page 4-27)
TO WC-10 BOARD CN001 (See page 4-27)

- Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

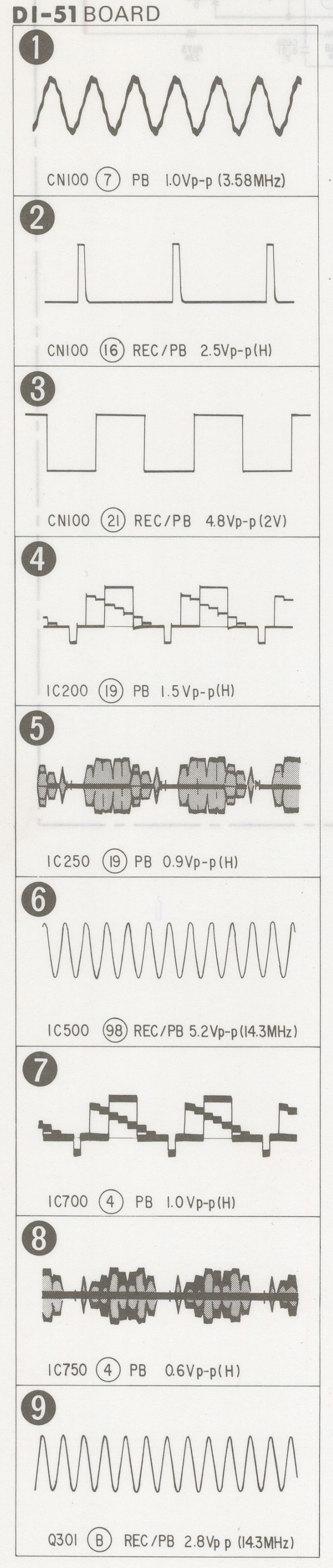
- Signal path

	REC	REC/PB	PB
Ref.signal	➤	➢	▷

DI-51 (DIGITAL PROCESS), WC-10 (CPI PROCESS) SCHEMATIC DIAGRAMS

—Ref. No. DI-51 BOARD : 1000 series, WC-10 BOARD : 2000 series—

DI-51 BOARD



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
DI-51 BOARD
IC200
IC250
IC300
IC400
IC450
IC150
IC100
IC800
IC500
IC600
IC700
IC750
TO MA-173 BOARD (3/5) CN008 (See page 4-48)
WC-10 BOARD
TO VI-121 BOARD (1/2) CN401 (See page 4-20)
TO VI-121 BOARD (See page 4-20)
IC001
IC003
IC003 M52350FP CHROMA PROCESS
LPFC2
LPFC1
DEM2
DEM1
HSP MMV
VSP MMV
SETUP CONTROL
DEM90° SHIFTER
TINT 90° SHIFTER
TINT CONTROL
CA1 LEVEL CONTOROL
CLAMP CNC1
DLY1-1
DLY2-1
CA11
TIME ADJ DLY1
CLAMP CNC2
DLY1-2
DLY2-2
CA12
Y/C TIME ADJ DLY2
OFFSET CANCEL
DLY1, 2
CA1 BET CONT. (Y/C MIX)
CA1 SW CONT
MOD90° SHIFTER
MOD2
LPF Y
CLAMP SLICE SYNC SEPA
MMV PULSE GEN
COLOR CONTROL
COLOR CONTROL AMP
NC
DIG IN1
CNC FC1
CNC FC2
DIG OUT2
DIG IN2
DNG C
OFFSET1
OFFSET2
OFFSET3
OFFSET4
28 NC
27 Y OUT
26 T CONT
25 ST CONT
24 FSC IN
23 VCC C
22 GND Y
21 CAI CONT
20 DIFF OUT1
19 MOD IN
18 DIFF OUT2
17 NC
WC-10 BOARD
❶
IC003 ⑫ PB 0.4Vp-p(H)
❷
IC003 (37) REC 0.6Vp-p(H)
❸
IC003 (37) PB 0.3Vp-p(H)

● Signal path

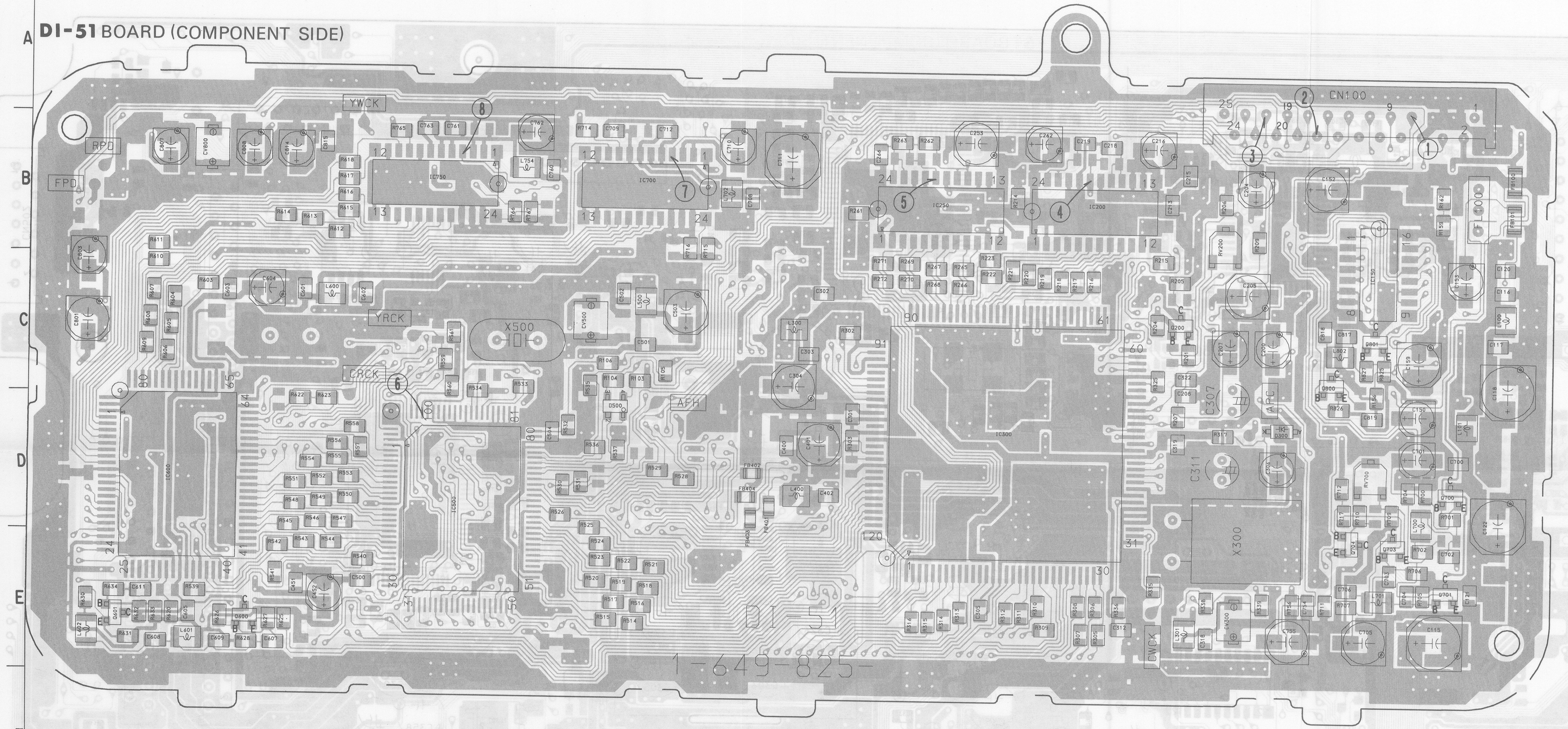
	VIDEO Signal		
	CHROMA	Y	Y/CHROMA
REC	➡	➡➡	➡➡➡
PB	⇨	⇨⇨	⇨⇨⇨

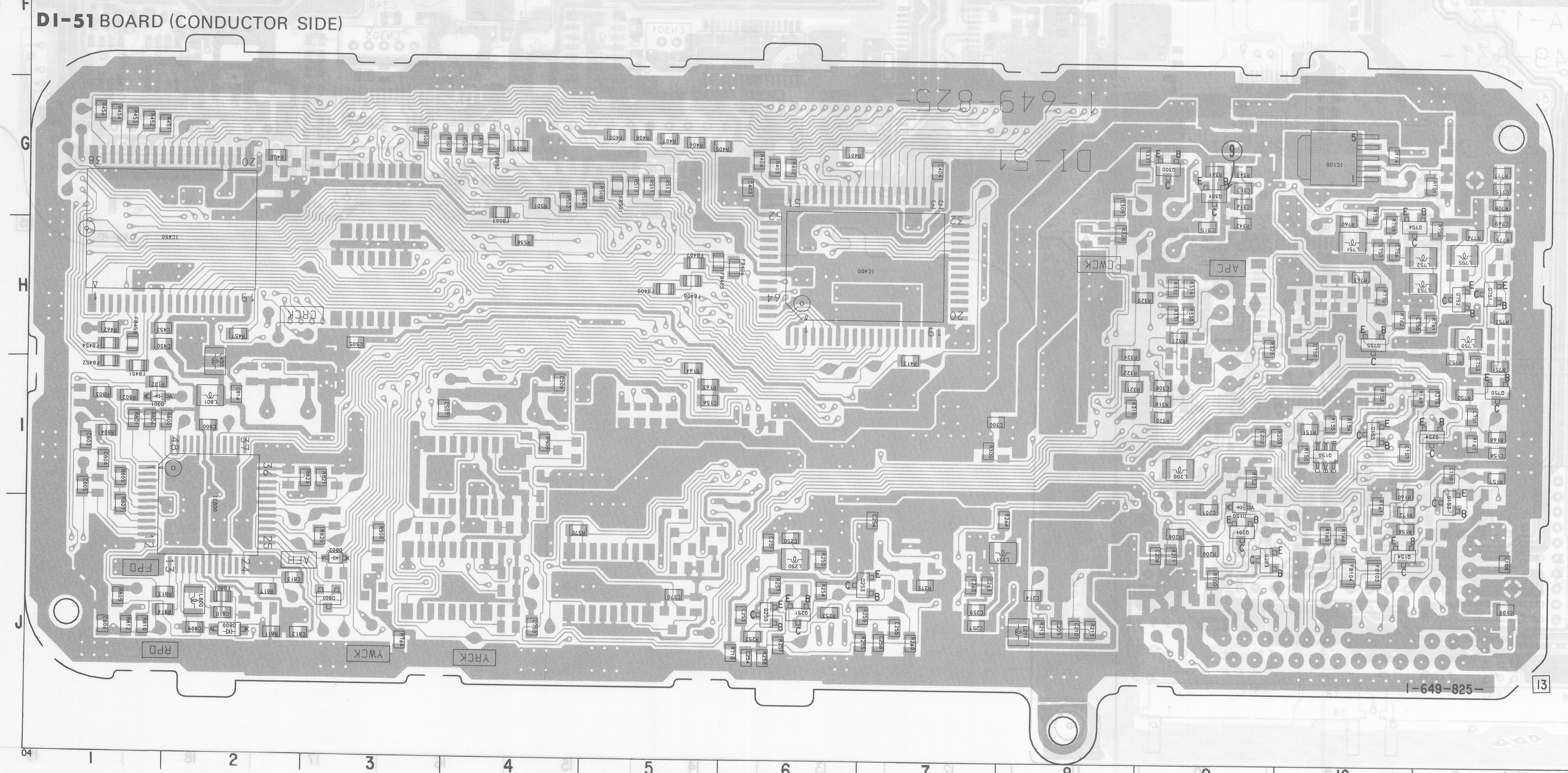
DIGITAL/CPI

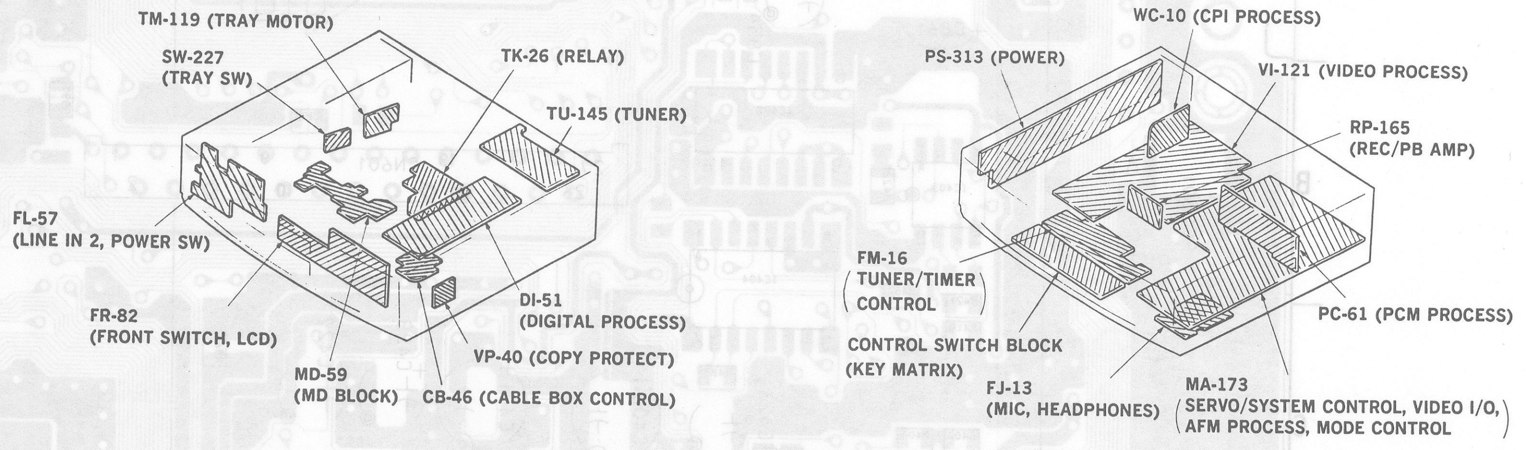
DI-51 (DIGITAL PROCESS), WC-10 (CPI PROCESS) PRINTED WIRING BOARDS

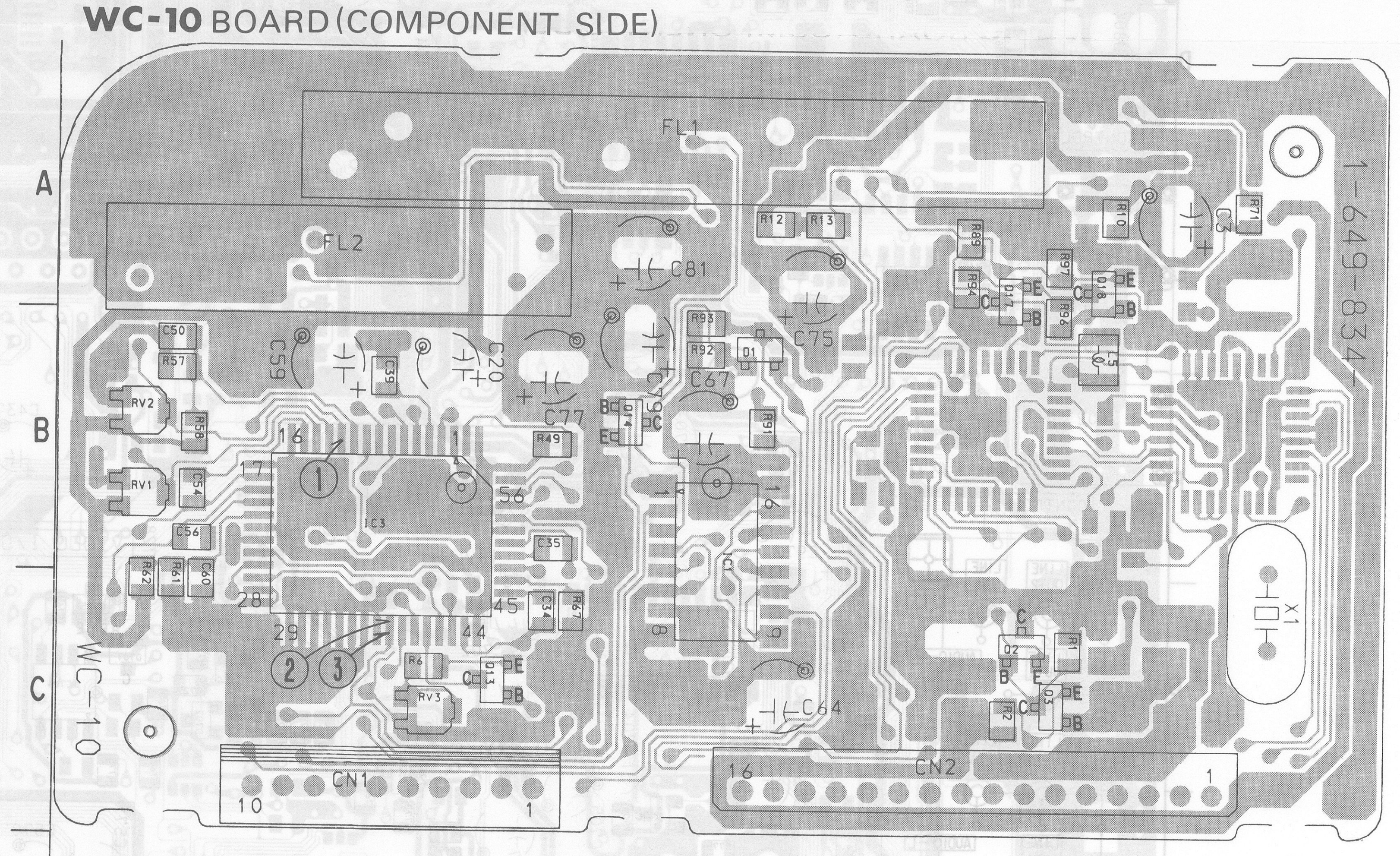
—Ref. No. DI-51 BOARD : 1000 series, WC-10 BOARD : 2000 series—

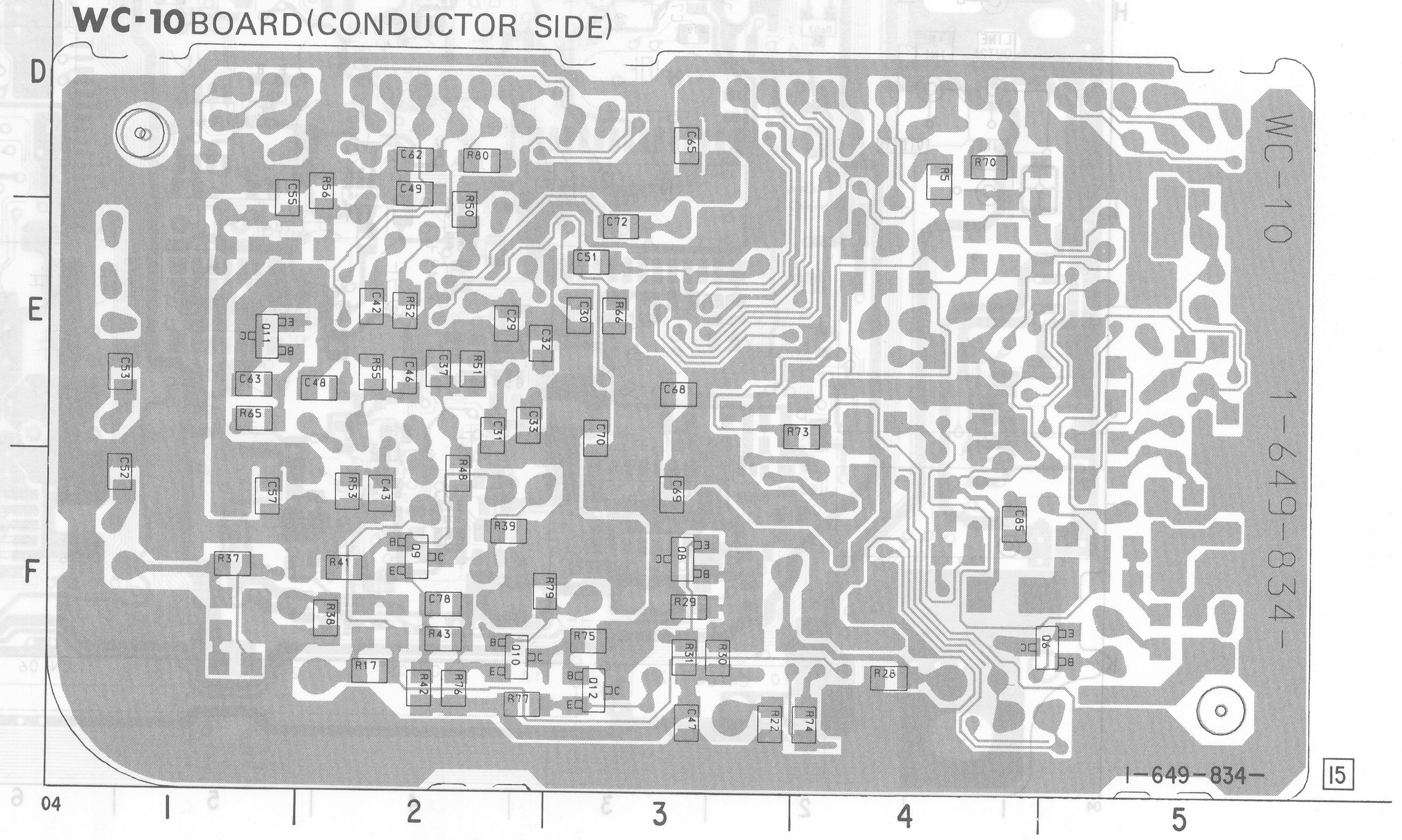
DI-51 BOARD	
CN100	A-10
D150	I-9
D300	D-9
D301	I-1
D500	C-5
D800	J-2
D801	J-3
D802	J-3
IC100	G-10
IC150	B-10
IC200	B-8
IC250	B-7
IC300	D-7
IC400	H-7
IC450	G-1
IC500	D-4
IC600	D-2
IC700	B-5
IC750	B-3
IC800	I-2
Q150	I-10
Q153	I-11
Q154	J-11
Q155	I-10
Q200	C-9
Q201	J-9
Q203	J-9
Q250	J-6
Q251	J-6
Q253	J-7
Q254	I-11
Q300	G-9
Q301	G-9
Q600	E-2
Q601	E-1
Q700	D-11
Q701	E-11
Q703	D-10
Q704	D-10
Q750	I-11
Q751	H-11
Q752	H-11
Q754	G-11
Q755	H-10
Q800	C-10
Q801	C-10


DI-51 BOARD (COMPONENT SIDE)
A
B
C
D
E
CN100
X500
YRCK
YWCK
CRCK
RPD
FPD
APH
DI-51
1-649-825-
①
②
③
④
⑤
⑥
⑦
⑧


DI-51 BOARD (CONDUCTOR SIDE)
F
G
H
I
J
1-649-825-
DI-51
FPD
RPD
YWCK
YRCK
CRCK
CWCK
APC
⑥
13
04
1
2
3
4
5
6
7
8
9
10
11


TM-119 (TRAY MOTOR)
SW-227 (TRAY SW)
TK-26 (RELAY)
TU-145 (TUNER)
FL-57 (LINE IN 2, POWER SW)
FR-82 (FRONT SWITCH, LCD)
MD-59 (MD BLOCK)
CB-46 (CABLE BOX CONTROL)
VP-40 (COPY PROTECT)
DI-51 (DIGITAL PROCESS)
WC-10 (CPI PROCESS)
PS-313 (POWER)
VI-121 (VIDEO PROCESS)
RP-165 (REC/PB AMP)
FM-16 (TUNER/TIMER CONTROL)
CONTROL SWITCH BLOCK (KEY MATRIX)
FJ-13 (MIC, HEADPHONES)
PC-61 (PCM PROCESS)
MA-173 (SERVO/SYSTEM CONTROL, VIDEO I/O, AFM PROCESS, MODE CONTROL)


WC-10 BOARD (COMPONENT SIDE)
A
B
C
FL1
FL2
CN1
CN2
IC1
X1
WC-10
1-649-834-
①
②
③

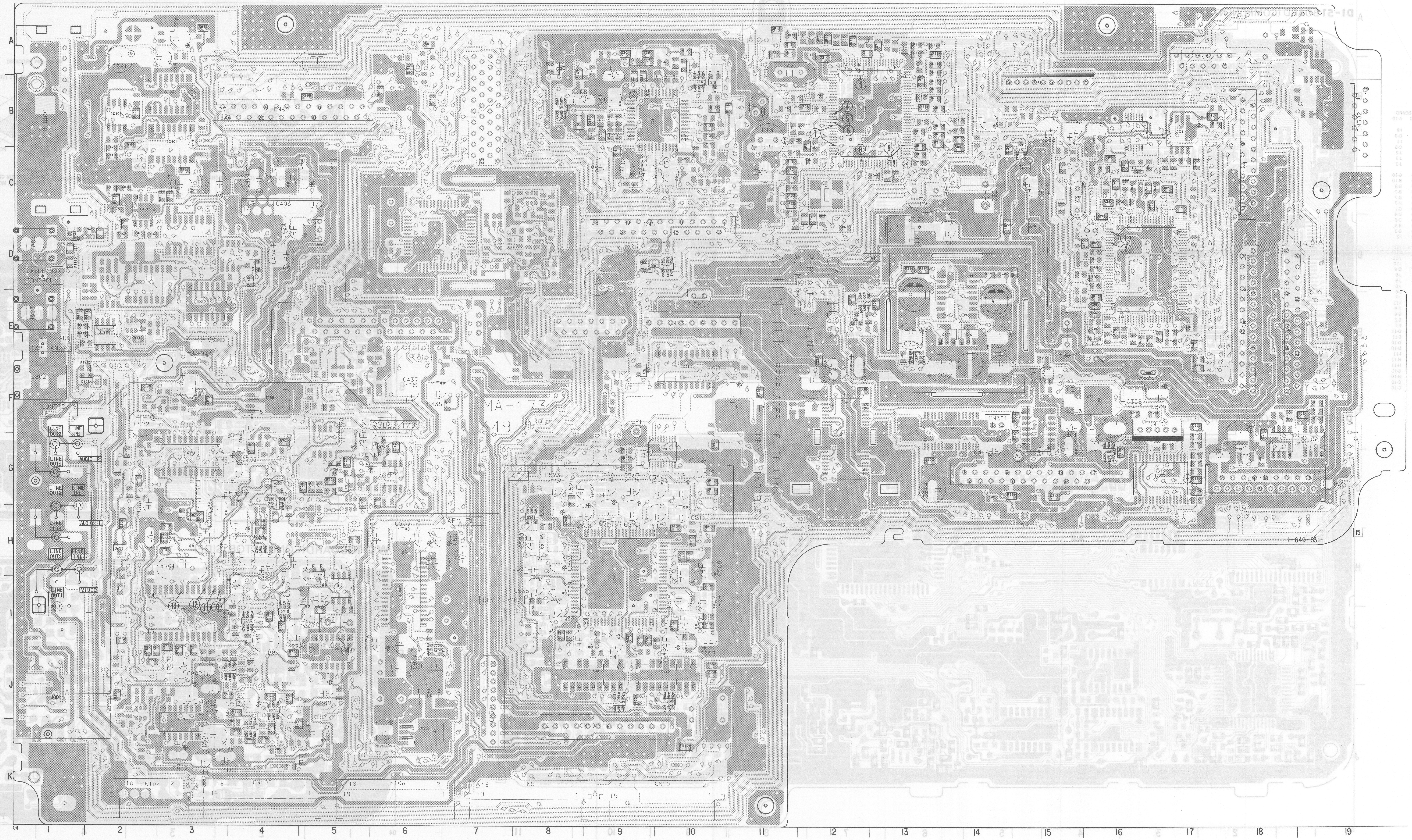

WC-10 BOARD (CONDUCTOR SIDE)
D
E
F
WC-10
1-649-834-
15
04
1
2
3
4
5

WC-10 BOARD	
CN001	C-2
CN002	C-4
D001	B-3
IC001	C-3
IC003	C-2
Q002	C-4
Q003	C-4
Q006	F-5
Q008	F-3
Q009	F-2
Q010	F-2
Q011	E-1
Q012	F-3
Q013	C-2
Q014	B-3
Q017	B-4
Q018	A-5

MA-173 (SERVO/SYSTEM CONTROL) PRINTED WIRING BOARD

—Ref. No. MA-173 BOARD : 3000 series—

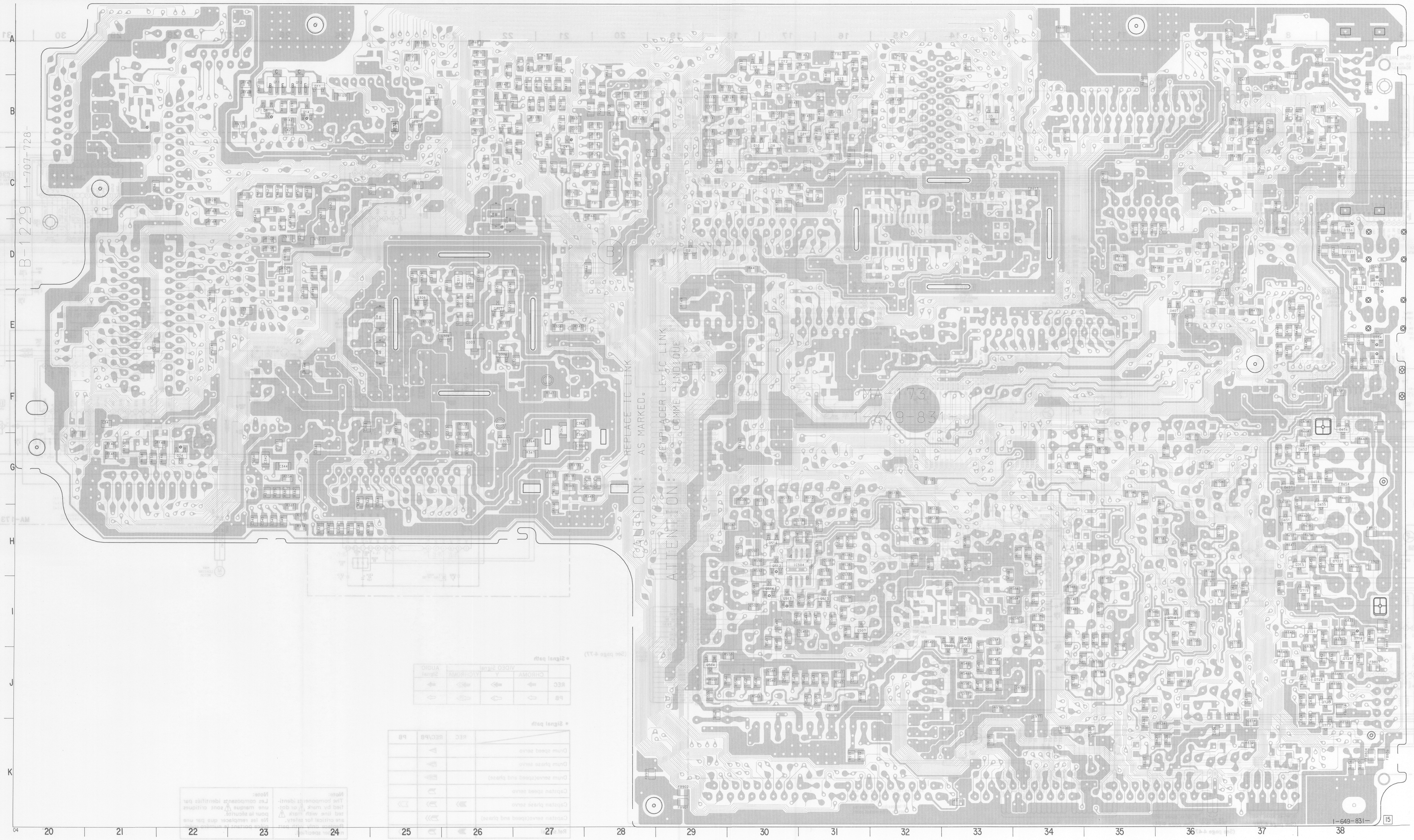
MA-173 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
CABLE JACK CONTROL
CONTROL S
LINE OUT1
LINE IN1
AUDIO-R
AUDIO-L
VIDEO
MA-173
1-649-831-
CN104
CN105
CN106
CN5
CN10
CN301
CN302
CN303
CN110
X701
X702
AFM
DEV 1.7MHz
1-649-831-

MA-173 (SERVO/SYSTEM CONTROL) PRINTED WIRING BOARD

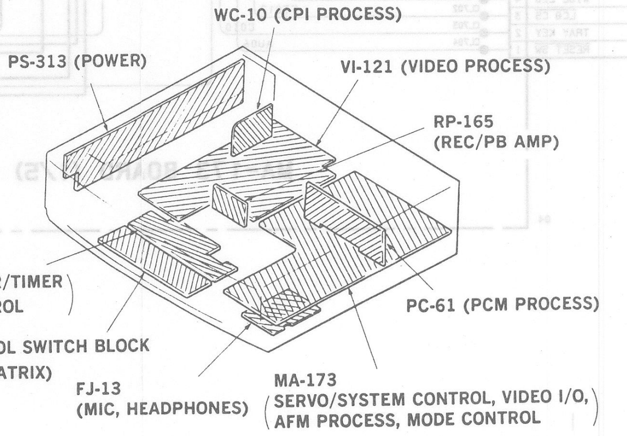
—Ref. No. MA-173 BOARD : 3000 series—

MA-173 BOARD (CONDUCTOR SIDE)


A
B
C
D
E
F
G
H
I
J
K
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
B-1229
1-707-728-
CAUTION: REPLACE IC LINK AS MARKED.
ATTENTION: REMPLACER LE IC LINK COMME INDIQUE
MA-173
1-649-831-
1-649-831-
15

MA-173 BOARD

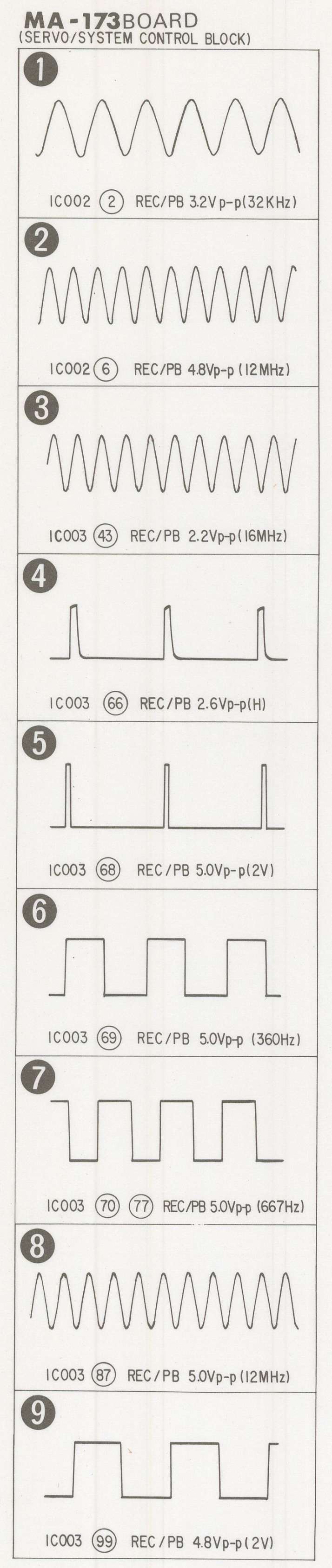
CN001	E-18
CN002	E-18
CN004	C-18
CN005	K-8
CN006	B-15
CN007	A-17
CN008	D-9
CN009	B-7
CN010	K-10
CN011	G-18
CN101	K-9
CN102	E-10
CN104	K-2
CN105	K-4
CN106	K-6
CN301	F-14
CN302	G-15
CN303	F-17
CN501	J-7
CN502	B-19
CN601	B-4
D001	A-32
D002	D-29
D003	E-25
D004	E-25
D005	B-33
D006	C-26
D007	C-16
D008	B-30
D010	B-25
D011	B-24
D012	A-30
D016	C-27
D021	E-16
D301	E-12
D302	G-26
D303	E-26
D304	E-26
D651	H-37
D652	G-38
D653	H-2
D654	G-38
D655	G-38
D656	F-38
D657	G-37
D658	F-1
D701	F-9
D702	G-5
D715	H-38
D716	I-38
D717	K-38
D719	I-38
D720	J-38
D721	I-38
D722	H-38
D723	J-38
D724	J-38
D730	E-38
D731	D-38
D732	D-38
D734	E-38
D735	D-1
D736	D-38
D737	D-38
IC001	F-10
IC002	D-16
IC003	B-12
IC004	B-17
IC005	B-16
IC006	G-19
IC007	G-18
IC009	B-10
IC010	G-10
IC012	D-13
IC301	F-14
IC302	E-14
IC303	F-15
IC305	G-17
IC306	G-12
IC307	F-16
IC401	C-2
IC402	B-3
IC403	B-2
IC404	B-3
IC405	D-5
IC406	C-4
IC407	E-3
IC408	E-2
IC501	H-9
IC502	I-6
IC504	H-30
IC701	G-3
IC703	I-5
IC704	G-6
IC705	I-3
IC706	J-5
IC707	K-3
IC950	J-6
IC951	F-4
IC952	K-6
Q001	D-10
Q003	D-9
Q004	B-27
Q005	B-26
Q006	B-26
Q007	B-8
Q008	B-23
Q009	A-30
Q010	B-30
Q011	B-23
Q012	B-23
Q013	B-15
Q014	B-24
Q015	B-10
Q016	B-10
Q018	A-10
Q019	B-25
Q020	B-31
Q021	B-31
Q023	A-31
Q024	G-22
Q025	A-8
Q303	E-12
Q304	E-13
Q306	E-26
Q307	E-26
Q308	E-25
Q309	E-14
Q310	E-14
Q312	G-16
Q403	D-4
Q407	E-36
Q501	J-6
Q502	I-33
Q503	I-33
Q504	J-29
Q506	H-8
Q507	I-31
Q508	J-10
Q509	J-9
Q512	H-30
Q513	I-30
Q514	I-30
Q515	I-31
Q516	H-30
Q701	H-3
Q705	G-6
Q706	G-5
Q707	G-5
Q713	I-4
Q715	I-4
Q716	I-36
Q717	H-5
Q719	G-4
Q720	H-4
Q721	G-4
Q730	K-4
Q732	J-4
Q733	J-4


WC-10 (CPI PROCESS)
PS-313 (POWER)
VI-121 (VIDEO PROCESS)
RP-165 (REC/PB AMP)
FM-16 (TUNER/TIMER CONTROL)
PC-61 (PCM PROCESS)
CONTROL SWITCH BLOCK (KEY MATRIX)
FJ-13 (MIC, HEADPHONES)
MA-173 (SERVO/SYSTEM CONTROL, VIDEO I/O, AFM PROCESS, MODE CONTROL)

MA-173 (SERVO/SYSTEM CONTROL) SCHEMATIC DIAGRAM

—Ref. No. MA-173 BOARD : 3000 series—

- **Refer to page 4-33, 4-37 for Printed Wiring Boards.**



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
A
B
C
D
E
F
G
H
I
J
K
L
M
N
(See page 4-56)
TO MA-173 BOARD (5/5)
(See page 4-51)
TO MA-173 BOARD (4/5)
(See page 4-47)
TO MA-173 BOARD (3/5)
(See page 4-104)
TO PS-515 BOARD CN002
(See page 4-50)
TO MA-173 BOARD (5/5)
(See page 4-54)
TO MA-173 BOARD (4/5)
(See page 4-19)
TO VI-121 BOARD CN102
(See page 4-19)
TO VI-121 BOARD CN103
(See page 4-50)
TO MA-173 BOARD (4/5)
(See page 4-72)
TO TK-26 BOARD CN501
(See page 4-71)
TO TK-26 BOARD CN502
(See page 4-87)
TO FP-82 BOARD CN501
IC002
MODE CONTROL
IC003
SERVO/SYSTEM CONTROL
IC001
I/O PORT EXPANDER
IC012
IC005
IC004
EEP ROM
IC006
IC007
IC008
IC010
VIDEO RECORDING D/A
MA-173 BOARD (1/5)
(See page 4-51)
TO MA-173 BOARD (4/5)
(See page 4-77)
TO MD-09 BOARD CN001
CHECK PIN
IC303
IC302
IC305
DRUM MOTOR DRIVE
IC306
CAPSTAN MOTOR DRIVE
IC307
IC301
LOADING MOTOR DRIVE
M902
LOADING MOTOR
TO MD BLOCK
(See page 4-77)
MA-173 BOARD (2/5)
TO VP-40 BOARD CN501
(See page 4-78)
TO MA-173 BOARD (5/5)
(See page 4-47)
TO CB-46 BOARD CN001
(See page 4-94)
★ : Impossible to measure the voltage of the marked points.

- **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	➡
PB	⇨	⇨≫	⇨⋙	⇨

- **Signal path**

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷≫	
Drum servo(speed and phase)		▷⋙	
Capstan speed servo		⊳	
Capstan phase servo	➡≫	⊳≫	⇨≫
Capstan servo(speed and phase)		⊳⋙	
Ref.signal	➡	⊳	⇨

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

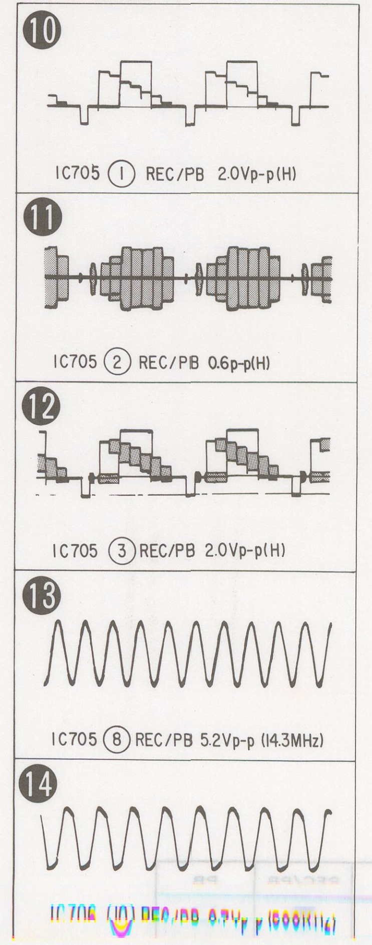
MA-173 (VIDEO I/O) SCHEMATIC DIAGRAM

—Ref. No. MA-173 BOARD : 3000 series—

- Refer to page 4-33, 4-37 for Printed Wiring Boards.

MA-173 BOARD (3/5)
TO MA-173 BOARD (5/5) (See page 4-55)
TO MA-173 BOARD (4/5) (See page 4-51)
TO MA-173 BOARD (1/5) (See page 4-43)
UN 13.5V P31
UN 5V P21
RFU AUDIO T3
VHF/UHF IN
OUT
RFU 801
ANT OUT
J801 REAR PANEL (PANEL SEEING)
LINE IN 1
LINE OUT 1
LINE OUT 2
AUDIO
VIDEO
S VIDEO
VTR/TV U8
IL IN B0
IR IN B1
1 IN GND B2
IL OUT B3
IR OUT B4
3L OUT B6
3R OUT B7
GND B P9
SIRCS IN K0
3P LANC VDD K1
3P LANC K2
C BOX VDD N1
LED CONT N2
CONTROL S IN
LANC
CABLE BOX CONTROL
J802
J803
J804
GND 2 (CHASSIS)
IC701 INPUT SELECTOR
IC707 VIDEO AMP
IC703 MONITOR Y SELECTOR
IC704 MONITOR C SELECTOR
IC705 DSB
IC706 CD AFC
Q701 S/LINE INV
Q705 MUTE
Q706, 707 Y CD DET
Q730 V BUFFER
Q732 V BUFFER
Q733 C BUFFER
Q715 Y AMP. BUFFER
Q713 V AMP. BUFFER
Q716 MUTE
Q717 MUTE
Q719 C BUFFER
Q720 Y CLAMP
Q721 V CLAMP
TO MA-173 BOARD (1/5) (See page 4-43)
TO MA-173 BOARD (5/5) (See page 4-55)
TO MA-173 BOARD (4/5) (See page 4-51)
TO VI-121 BOARD (1/2) CN106 (See page 4-19)
TO VI-121 BOARD (1/2) CN104 (See page 4-19)
TO VI-121 BOARD (1/2) CN101 (See page 4-19)
TO MA-173 BOARD (1/5) (See page 4-44)
TO MA-173 BOARD (1/5) (See page 4-45)
TO MA-173 BOARD (5/5) (See page 4-56)
TO DI-51 BOARD CN601 (See page 4-24)
TO MA-173 BOARD (1/5) (See page 4-43)
no mark:REC/PB mode (SP mode)
( ):REC mode (SP mode)
< >:PB mode (SP mode)

MA-173 BOARD
(IN/OUT BLOCK)



- Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

- Signal path

	REC	REC/PB	PB
Ref.signal	➤	➤	▷

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MA-173 (AFM AUDIO PROCESS) SCHEMATIC DIAGRAM
—Ref. No. MA-173 BOARD: 3000 series—
- **Refer to page 4-33, 4-37 for Printed Wiring Boards.**

MA-173 BOARD (4/5)
TO PC-61 BOARD CN701 (See page 4-61)
IC501 AFM PROCESS CXA1342Q
IC502 REC AFM CARRIER PLL
IC504 VB AMP
IC401 LINE1 BUFFER
IC402 LINE1/2 SELECTOR
IC403 MIC MIX
IC404 INPUT SELECTOR
IC405 REG
IC406 REC VOL CONTROL
IC407 AFM OUTPUT SELECTOR
IC408 AFM/PCM MIX AMP
Q501 REC AFM AMP·BUFFER
Q502 1.7MHz MUTE
Q503 AFM MODE SWITCH
Q504 PB RF BUFFER
Q506 SP/LP SWITCH
Q507 MUTE
Q508, 509 PB RF AMP·BUFFER
Q512-515 VB SWITCH
Q516 SWITCH
Q403 RFU AUDIO BUFFER
Q407 VB INVERTER
TO MA-173 BOARD (1/5) (See page 4-45)
TO MA-173 BOARD (5/5) (See page 4-50)
TO MA-173 BOARD (3/5) (See page 4-47)
TO MA-173 BOARD (1/5) (See page 4-44)
TO MA-173 BOARD (5/5) (See page 4-56)
TO MA-173 BOARD (6/5) (See page 4-55)
TO PC-61 BOARD CN601 (See page 4-63)
TO FJ-13 BOARD CN201 (See page 4-91)

● **Signal path**

	AUDIO Signal
REC	➡
PB	⇨

● **Signal path**

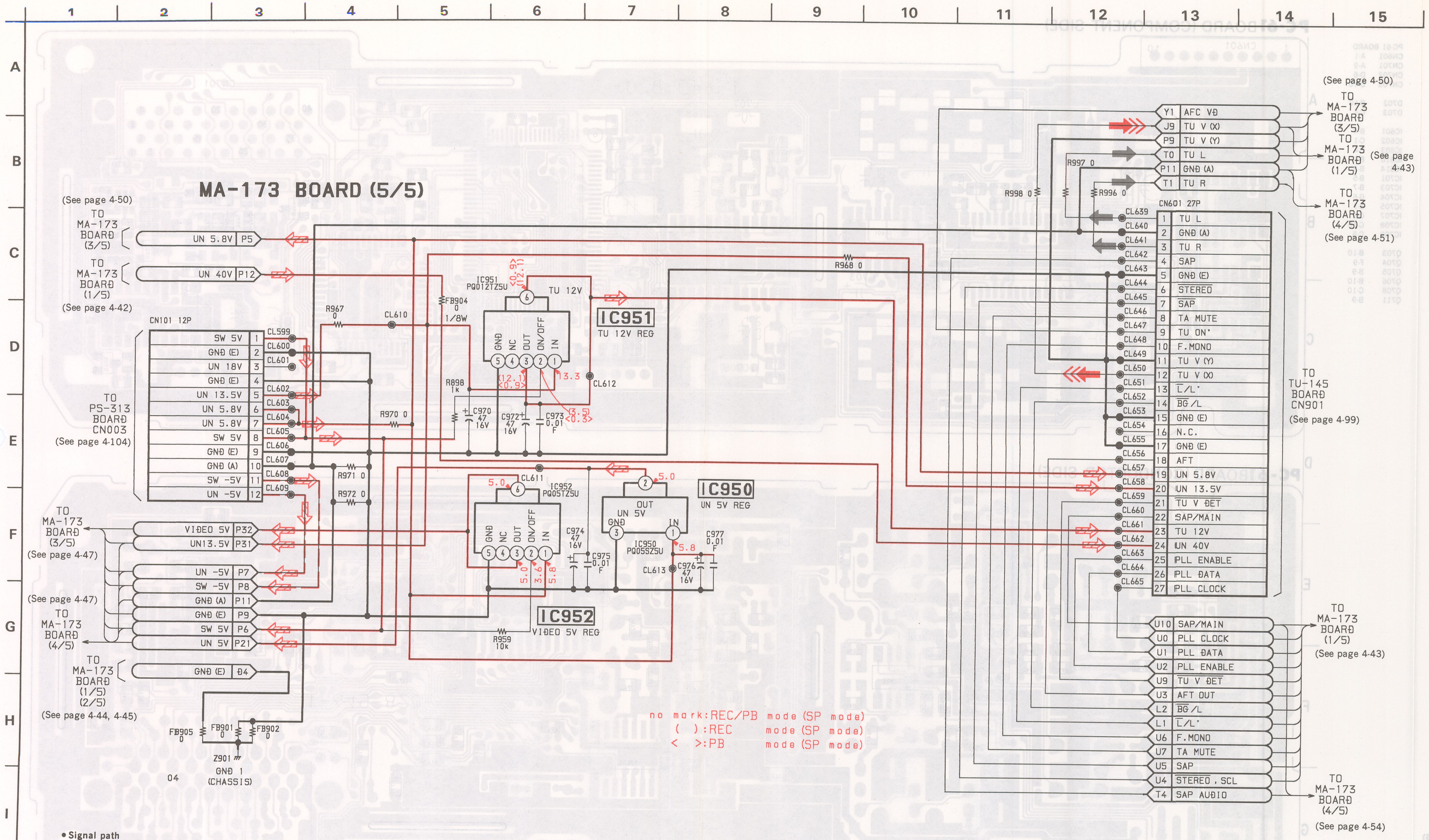
	REC	REC/PB	PB
Ref.signal	➡	➡	⇨

AFM AUDIO

MA-173 (REGULATOR) SCHEMATIC DIAGRAM

—Ref. No. MA-173 BOARD: 3000 series—

- Refer to page 4-33, 4-37 for Printed Wiring Boards.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
MA-173 BOARD (5/5)
(See page 4-50)
TO MA-173 BOARD (3/5)
UN 5.8V P5
TO MA-173 BOARD (1/5)
UN 40V P12
(See page 4-42)
CN101 12P
SW 5V 1
GND (E) 2
UN 18V 3
GND (E) 4
UN 13.5V 5
UN 5.8V 6
UN 5.8V 7
SW 5V 8
GND (E) 9
GND (A) 10
SW -5V 11
UN -5V 12
TO PS-313 BOARD CN003
(See page 4-104)
CL599
CL600
CL601
CL602
CL603
CL604
CL605
CL606
CL607
CL608
CL609
R967 0
CL610
R970 0
R971 0
R972 0
TO MA-173 BOARD (3/5)
(See page 4-47)
VIDEO 5V P32
UN13.5V P31
UN -5V P7
SW -5V P8
GND (A) P11
GND (E) P9
SW 5V P6
UN 5V P21
(See page 4-47)
TO MA-173 BOARD (4/5)
TO MA-173 BOARD (1/5) (2/5)
(See page 4-44, 4-45)
GND (E) 04
FB905 0
FB901 0
FB902 0
Z901
04
GND 1 (CHASSIS)
FB904 0 1/8W
IC951 PQ012TZ5U
TU 12V
IC951
TU 12V REG
GND
NC
OUT
ON/OFF
IN
<0.9>
(12.1)
(12.1)
<0.9>
13.3
CL612
R898 1k
C970 47 16V
C972 47 16V
C973 0.01 F
(3.5)
<0.3>
5.0
CL611
IC952 PQ05TZ5U
C974 47 16V
C975 0.01 F
5.0
3.6
5.8
IC952
VIDEO 5V REG
R959 10k
5.0
IC950
UN 5V REG
OUT UN 5V
GND
IN
IC950 PQ05SZ5U
5.8
C977 0.01 F
C976 47 16V
CL613
R968 0
R998 0
R997 0
R996 0
Y1 AFC VD
J9 TU V (X)
P9 TU V (Y)
T0 TU L
P11 GND (A)
T1 TU R
(See page 4-50)
TO MA-173 BOARD (3/5)
TO MA-173 BOARD (1/5)
(See page 4-43)
TO MA-173 BOARD (4/5)
(See page 4-51)
CN601 27P
CL639
CL640
CL641
CL642
CL643
CL644
CL645
CL646
CL647
CL648
CL649
CL650
CL651
CL652
CL653
CL654
CL655
CL656
CL657
CL658
CL659
CL660
CL661
CL662
CL663
CL664
CL665
1 TU L
2 GND (A)
3 TU R
4 SAP
5 GND (E)
6 STEREO
7 SAP
8 TA MUTE
9 TU ON'
10 F.MONO
11 TU V (Y)
12 TU V (X)
13 L/L'
14 BG/L
15 GND (E)
16 N.C.
17 GND (E)
18 AFT
19 UN 5.8V
20 UN 13.5V
21 TU V DET
22 SAP/MAIN
23 TU 12V
24 UN 40V
25 PLL ENABLE
26 PLL DATA
27 PLL CLOCK
TO TU-145 BOARD CN901
(See page 4-99)
U10 SAP/MAIN
U0 PLL CLOCK
U1 PLL DATA
U2 PLL ENABLE
U9 TU V DET
U3 AFT OUT
L2 BG/L
L1 L/L'
U6 F.MONO
U7 TA MUTE
U5 SAP
U4 STEREO, SCL
T4 SAP AUDIO
TO MA-173 BOARD (1/5)
(See page 4-43)
TO MA-173 BOARD (4/5)
(See page 4-54)

no mark:REC/PB mode (SP mode)
( ):REC mode (SP mode)
< >:PB mode (SP mode)

- Signal path

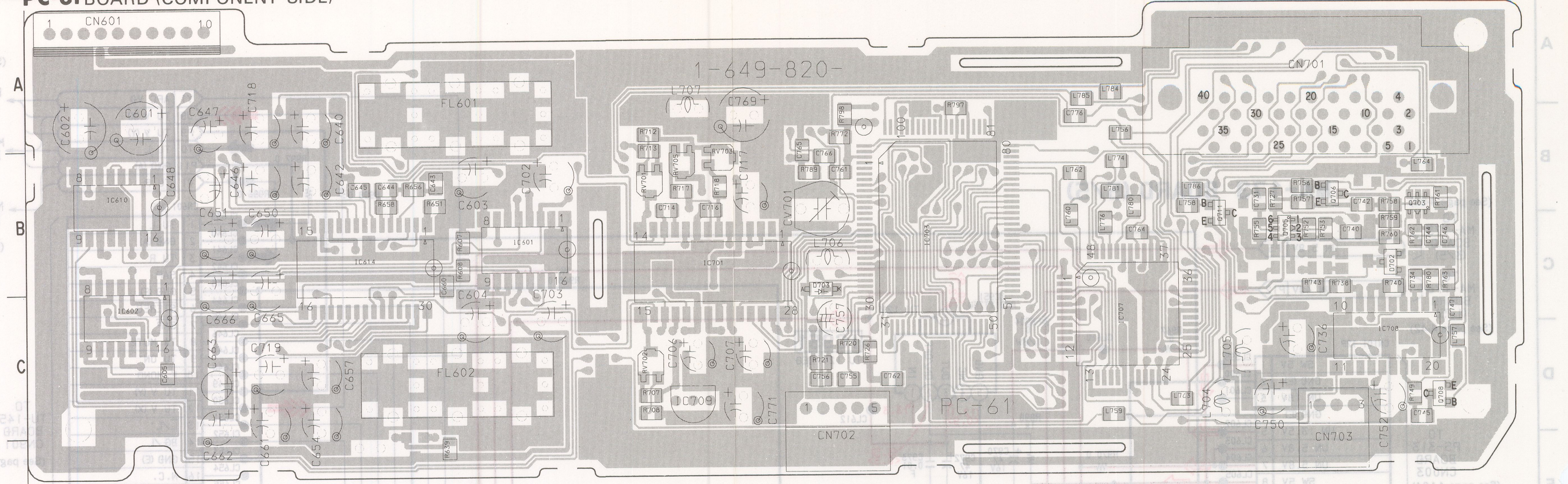
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨

PC-61 (PCM AUDIO PROCESS) PRINTED WIRING BOARD

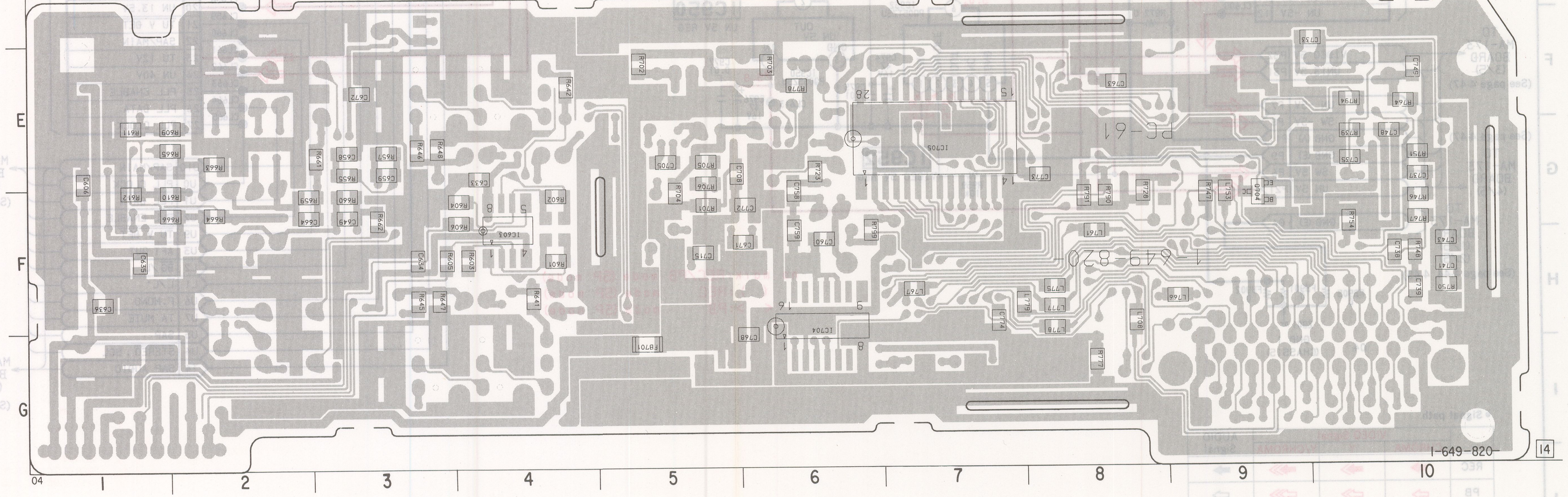
—Ref. No. PC-61 BOARD: 4000 series—

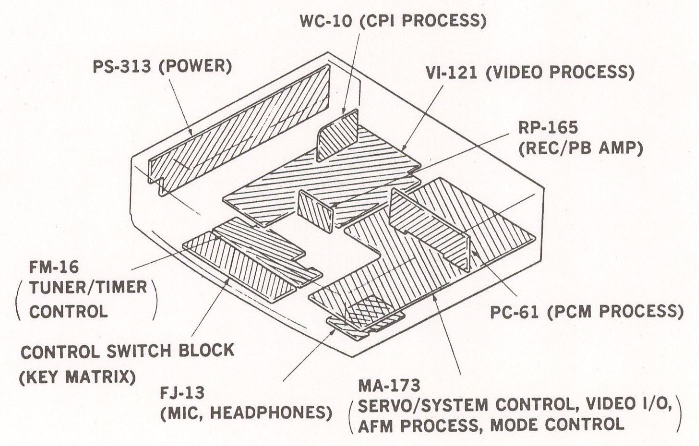
PC-61 BOARD	
CN601	A-1
CN701	A-9
CN702	D-6
CN703	D-10
D702	B-10
D703	C-6
IC601	B-4
IC602	C-1
IC603	F-4
IC610	B-1
IC614	B-3
IC701	B-5
IC703	B-7
IC704	G-6
IC705	E-7
IC707	C-8
IC708	C-10
IC709	C-5
Q703	B-10
Q704	F-9
Q705	B-9
Q706	B-10
Q708	C-10
Q711	B-9

PC-61 BOARD (COMPONENT SIDE)

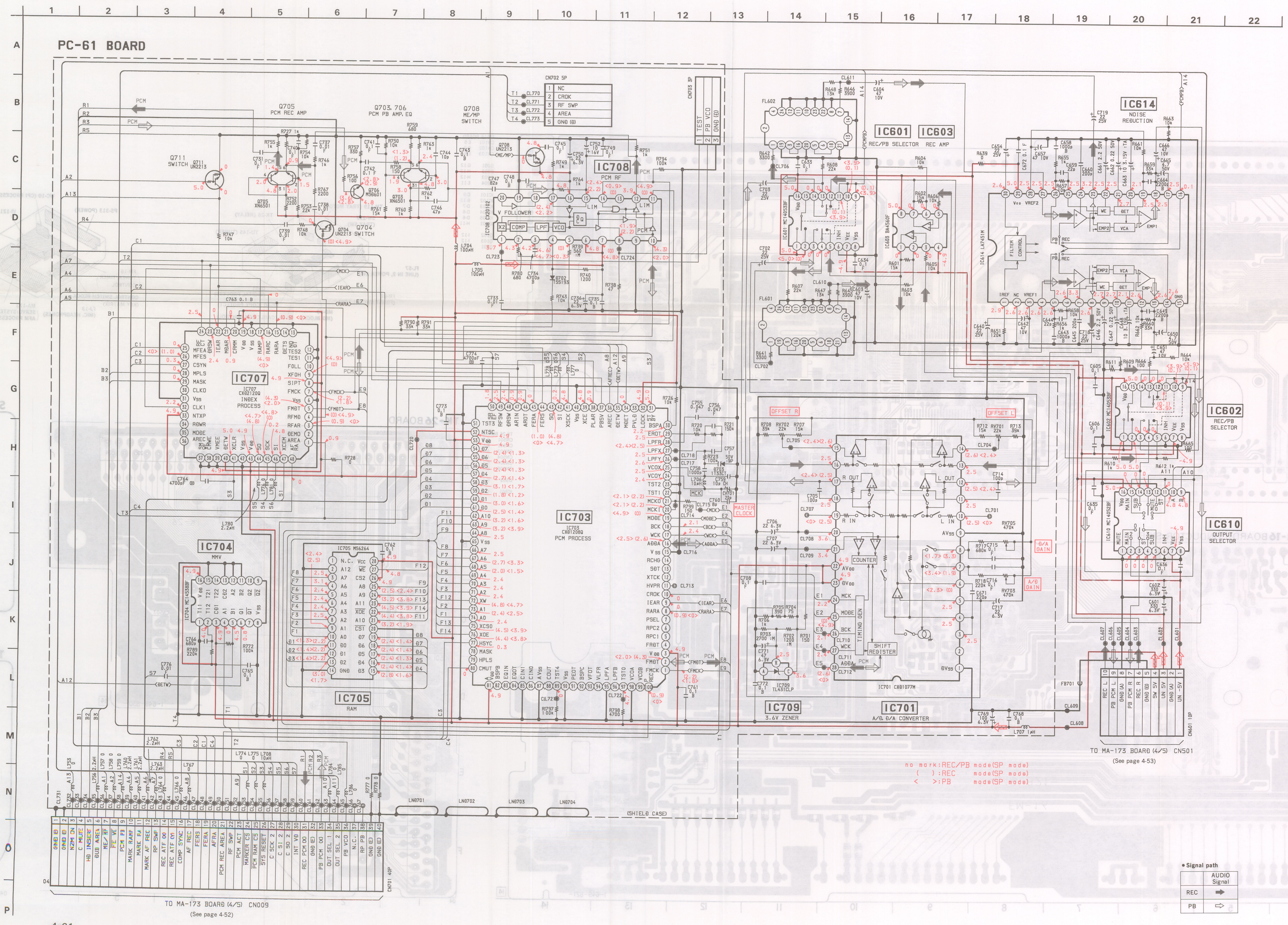

A
B
C
D
CN601
1
10
1-649-820-
FL601
FL602
CN701
40
30
20
35
25
15
10
5
4
2
3
CN702
CN703
PC-61

PC-61 BOARD (CONDUCTOR SIDE)


E
F
G
PC-61
1-649-820
04
1
2
3
4
5
6
7
8
9
10
14


WC-10 (CPI PROCESS)
PS-313 (POWER)
VI-121 (VIDEO PROCESS)
RP-165 (REC/PB AMP)
FM-16 (TUNER/TIMER CONTROL)
CONTROL SWITCH BLOCK (KEY MATRIX)
FJ-13 (MIC, HEADPHONES)
MA-173 (SERVO/SYSTEM CONTROL, VIDEO I/O, AFM PROCESS, MODE CONTROL)
PC-61 (PCM PROCESS)

PC-61 (PCM AUDIO PROCESS) SCHEMATIC DIAGRAM
—Ref. No. PC-61 BOARD : 4000 series—


PC-61 BOARD
Q705 PCM REC AMP
Q703, 706 PCM PB AMP, EQ
Q708 ME/MP SWITCH
Q711 SWITCH
Q704 SWITCH
CN702 5P
NC
CROK
RF SWP
AREA
GND (D)
CN703 3P
TEST
PB VCO
GND (D)
IC708 PCM RF
IC707 CX8212OQ INDEX PROCESS
IC704 MMV
IC705 M56264 RAM
IC703 CX8120BQ PCM PROCESS
IC601 IC603 REC/PB SELECTOR REC AMP
IC614 NOISE REDUCTION
IC602 REC/PB SELECTOR
IC610 OUTPUT SELECTOR
IC709 3.6V ZENER
IC701 A/D, D/A CONVERTER
IC701 CXB1077M
MASTER CLOCK
OFFSET R
OFFSET L
D/A GAIN
A/D GAIN
COUNTER
TIMING GEN
SHIFT REGISTER
LN8701
LN8702
LN8703
LN8704
(SHIELD CASE)
TO MA-173 BOARD (4/5) CN009
(See page 4-52)
TO MA-173 BOARD (4/5) CN501
(See page 4-53)
CN701 40P
CN601 10P

no mark:REC/PB mode(SP mode)
( ):REC mode(SP mode)
< >:PB mode(SP mode)

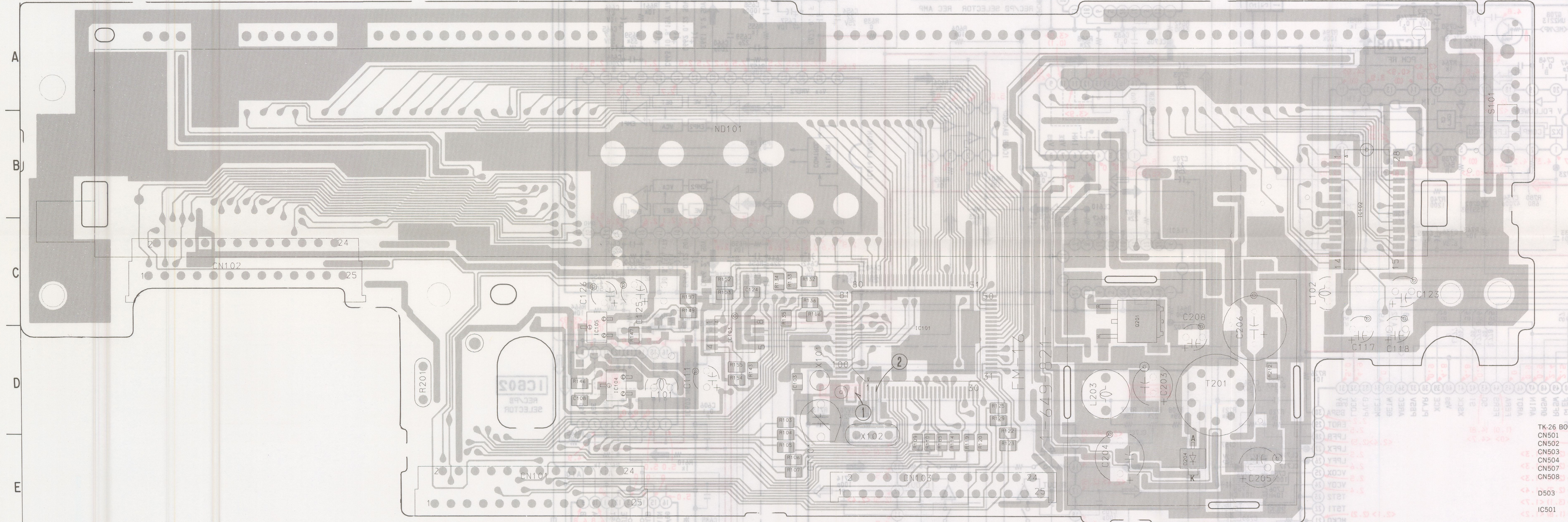
• Signal path

	AUDIO Signal
REC	➡
PB	⇨

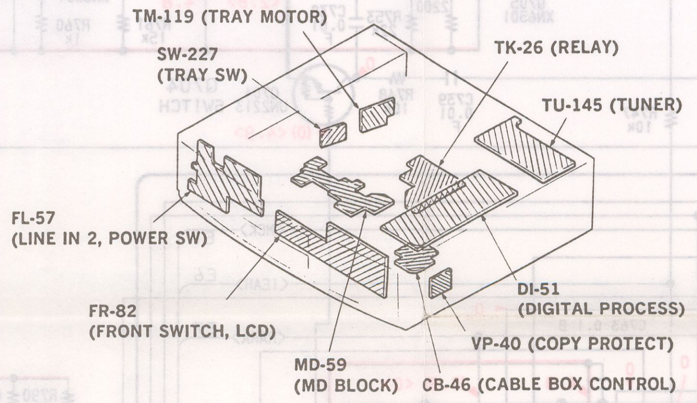
FM-16 (TUNER/TIMER CONTROL), TK-26 (RELAY), SW-227 (TRAY SWITCH), TM-119 (TRAY MOTOR) PRINTED WIRING BOARDS

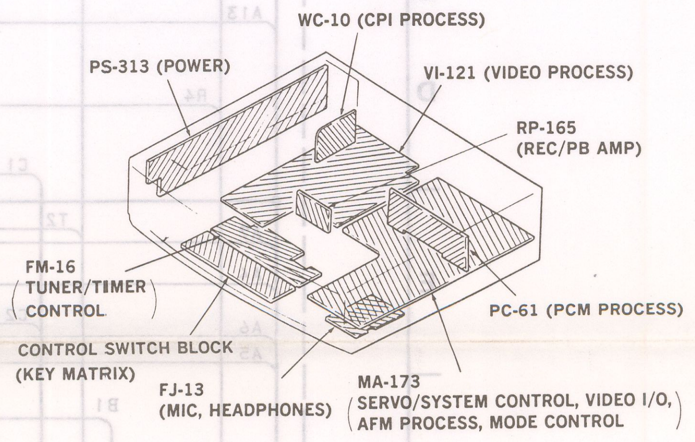
—Ref. No. FM-16, TK-26, SW-227 and TM-119 BOARDS : 7000 series—

FM-16 BOARD (COMPONENT SIDE)

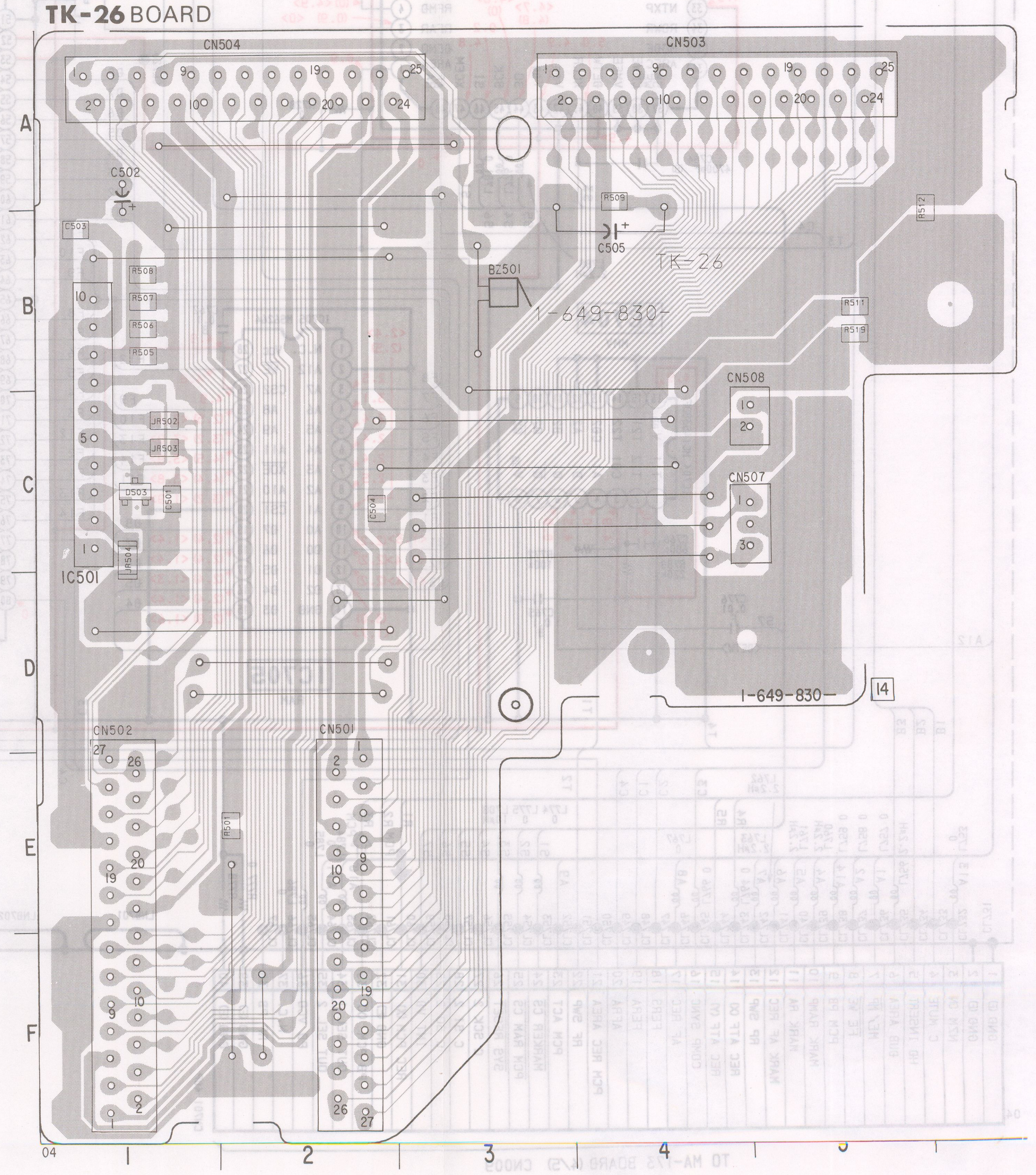

A
B
C
D
E
ND101
CN102
CN101
IC602
R201
X102
T201
C123
C117
C118
1-649-821

FM-16 BOARD	
CN101	E-5
CN102	C-2
CN103	E-9
D201	G-12
D202	H-12
D203	H-12
D204	E-11
IC101	C-9
IC102	B-13
IC103	D-7
IC104	D-6
IC105	D-6
IC201	H-11
Q102	I-12
Q103	I-12
Q201	C-11


TM-119 (TRAY MOTOR)
SW-227 (TRAY SW)
TK-26 (RELAY)
TU-145 (TUNER)
FL-57 (LINE IN 2, POWER SW)
FR-82 (FRONT SWITCH, LCD)
MD-59 (MD BLOCK)
DI-51 (DIGITAL PROCESS)
VP-40 (COPY PROTECT)
CB-46 (CABLE BOX CONTROL)

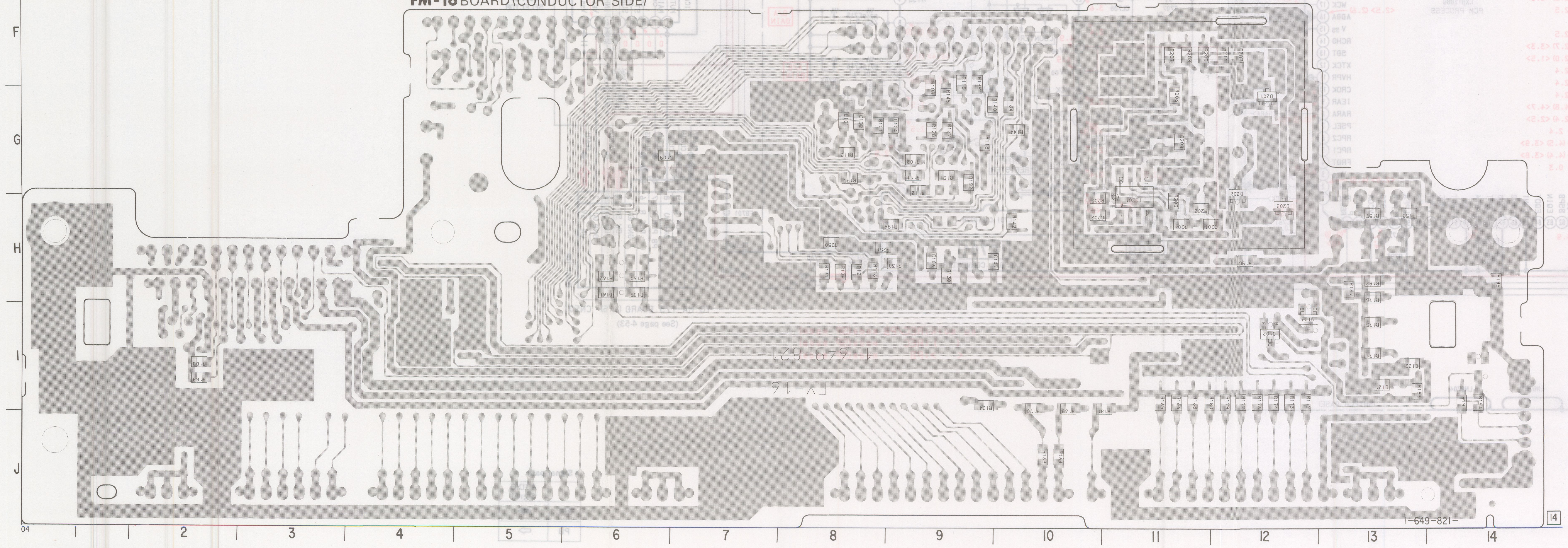

WC-10 (CPI PROCESS)
PS-313 (POWER)
VI-121 (VIDEO PROCESS)
RP-165 (REC/PB AMP)
FM-16 (TUNER/TIMER CONTROL)
CONTROL SWITCH BLOCK (KEY MATRIX)
FJ-13 (MIC, HEADPHONES)
MA-173 (SERVO/SYSTEM CONTROL, VIDEO I/O, AFM PROCESS, MODE CONTROL)
PC-61 (PCM PROCESS)

TK-26 BOARD

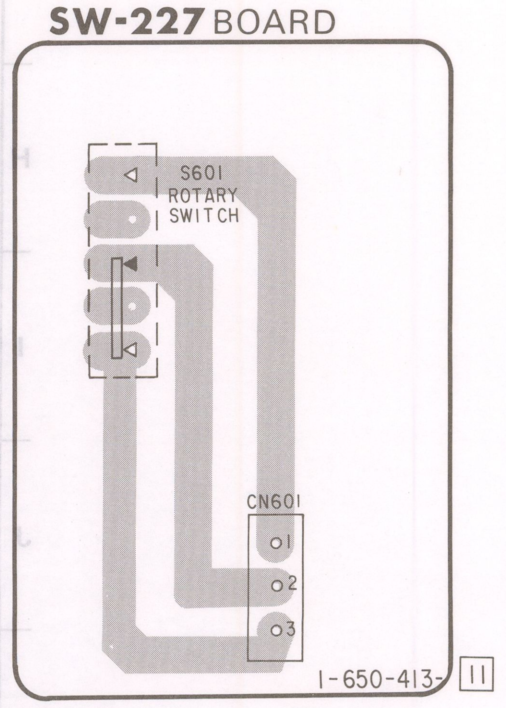

A
B
C
D
E
F
CN504
CN503
C502
C505
BZ501
TK-26
1-649-830-
CN508
CN507
C503
IC501
CN502
CN501
1-649-830
1
2
3
4
5

TK-26 BOARD	
CN501	E-2
CN502	E-1
CN503	A-4
CN504	A-2
CN507	C-4
CN508	C-4
D503	C-1
IC501	C-1

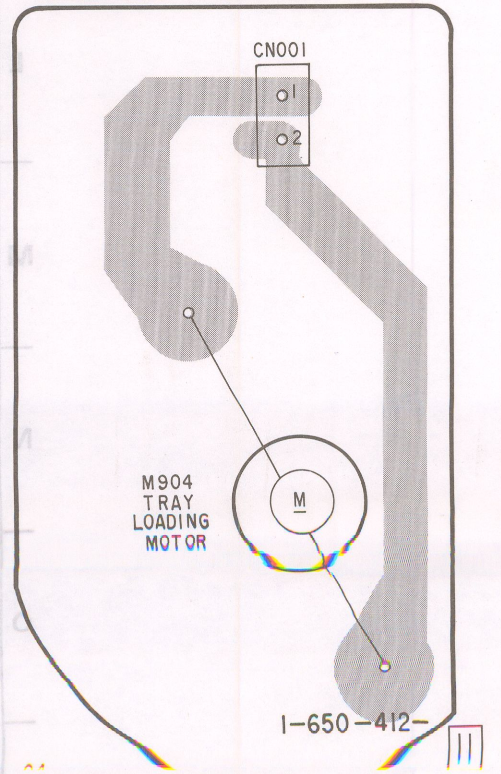
FM-16 BOARD (CONDUCTOR SIDE)


F
G
H
I
J
1-649-821
FM-16
1-649-821-
1
2
3
4
5
6
7
8
9
10
11
12
13
14

SW-227 BOARD

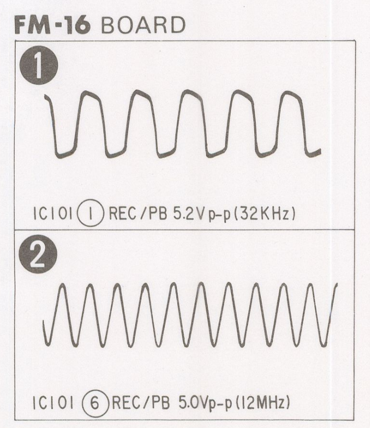

S601 ROTARY SWITCH
CN601
1-650-413- 11

TM-119 BOARD

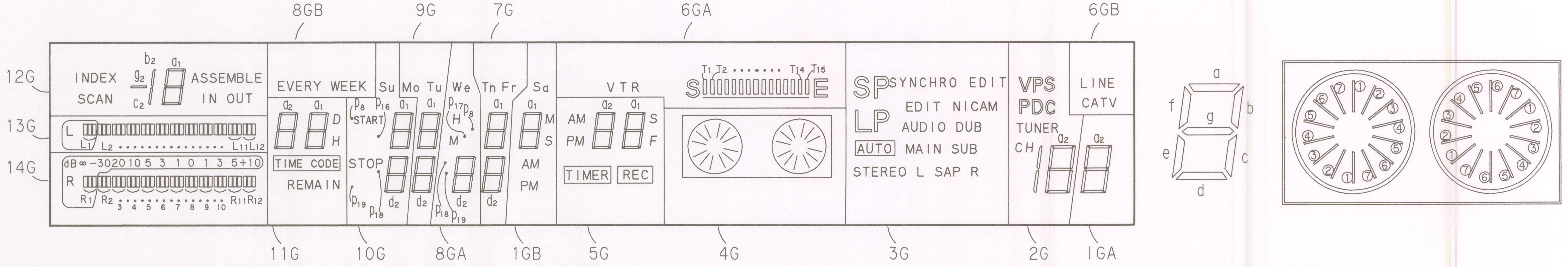

CN001
M904 TRAY LOADING MOTOR
M
1-650-412- 11

FM-16 (TUNER/TIMER CONTROL), TK-26 (RELAY), SW-227 (TRAY SWITCH), TM-119 (TRAY MOTOR) SCHEMATIC DIAGRAMS

—Ref. No. FM-16, TK-26, SW-227 and TM-119 BOARDS : 7000 series—



● FM-16 BOARD ND101 FLUORESCENT INDICATOR TUBE


8GB
9G
7G
6GA
6GB
12G
13G
14G
INDEX
SCAN
ASSEMBLE
IN OUT
EVERY WEEK
Su Mo Tu We Th Fr Sa
START
TIME CODE
REMAIN
STOP
VTR
AM
PM
TIMER
REC
SP SYNCHRO EDIT
EDIT NICAM
LP AUDIO DUB
AUTO MAIN SUB
STEREO L SAP R
VPS
PDC
TUNER
CH
LINE
CATV
11G
10G
8GA
1GB
5G
4G
3G
2G
1GA
a b c d e f g

FM-16 BOARD
ND101
IC101
TUNER/TIMER/LCD CONTROL
IC102
AUDIO LEVEL METER DRIVE
IC103
MEMORY
IC201
LCD REG CONTROL
IC105
POWER FAIL DET
IC104
RESET
Q201
SWITCHING
Q102, 103
INVERTER
TK-26 BOARD
IC501
TRAY CHASSIS LOADING MOTOR DRIVER
TO MA-173 BOARD (1/5) CN002 (See page 4-42)
TO SW-227 BOARD CN601 (See page 4-71)
TO MA-173 BOARD (1/5) CN001 (See page 4-42)
TO TM-119 BOARD CN001 (See page 4-71)
TO CONTROL SWITCH BLOCK (See page 4-74)
SW-227 BOARD
S601 TRAY SWITCH
TO TK-26 BOARD CN507 (See page 4-71)
TM-119 BOARD
M904 TRAY LOADING MOTOR
TO TK-26 BOARD CN508 (See page 4-72)
no mark: REC/PB mode (SP mode)
( ): REC mode (SP mode)
< >: PB mode (SP mode)
no mark: REC/PB mode (SP mode)
● Signal path
AUDIO Signal
REC
PB
A B C D E F G H I J K L
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20
1G	a1	b1	f1	g1	c1	e1	d1	AM	a2	b2	f2	g2	c2	e2	d2	PM	S	—	Sa	M
2G	VPS	—	—	—	—	PDC	TUNER	—	a2	b2	f2	g2	c2	e2	d2	/	CH	—	—	—
3G	SYNCHRO EDIT	SP	EDIT	AUDIO DUB	—	NICAM	—	—	SUB	—	—	SAP	R	MAIN	AUTO	—	LP	L	STEREO	—
4G	—	—	—	—	—	—	—	—	⑥	⑤	④	③	②	①	○○	⑦	—	—	—	—
5G	a1	b1	f1	g1	c1	e1	d1	AM	a2	b2	f2	g2	c2	e2	d2	PM	F	TIMER	REC	S
6G	T1	T2	T3	T4	T5	T6	T7	T8	S___E	T9	T10	T11	T12	T13	T14	T15	VTR	CATV	LINE	—
7G	a1	b1	f1	g1	c1	e1	d1	—	a2	b2	f2	g2	c2	e2	d2	—	—	Th	Fr	—
8G	—	—	EVERY WEEK	—	—	—	We	(UP)	a2	b2	f2	g2	c2	e2	d2	M	(DOWN)	(UP)	(DOWN)	H
9G	a1	b1	f1	g1	c1	e1	d1	—	a2	b2	f2	g2	c2	e2	d2	—	—	Mo	Tu	—
10G	a1	b1	f1	g1	c1	e1	d1	START	a2	b2	f2	g2	c2	e2	d2	—	Su	STOP	—	—
11G	a1	b1	f1	g1	c1	e1	d1	D	a2	b2	f2	g2	c2	e2	d2	H	—	TIME CODE	REMAIN	—
12G	a1	b1	f1	g1	c1	e1	d1	ASSEMBLE	—	b2	—	g2	c2	—	—	IN	OUT	INDEX	SCAN	—

	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30	P31	P32
13G	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12
14G	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12

• INTERNAL CONNECTION

CONTROL SWITCH BLOCK (KEY MATRIX), MD-59 (MD BLOCK), VP-40 (COPY PROTECT) SCHEMATIC DIAGRAMS

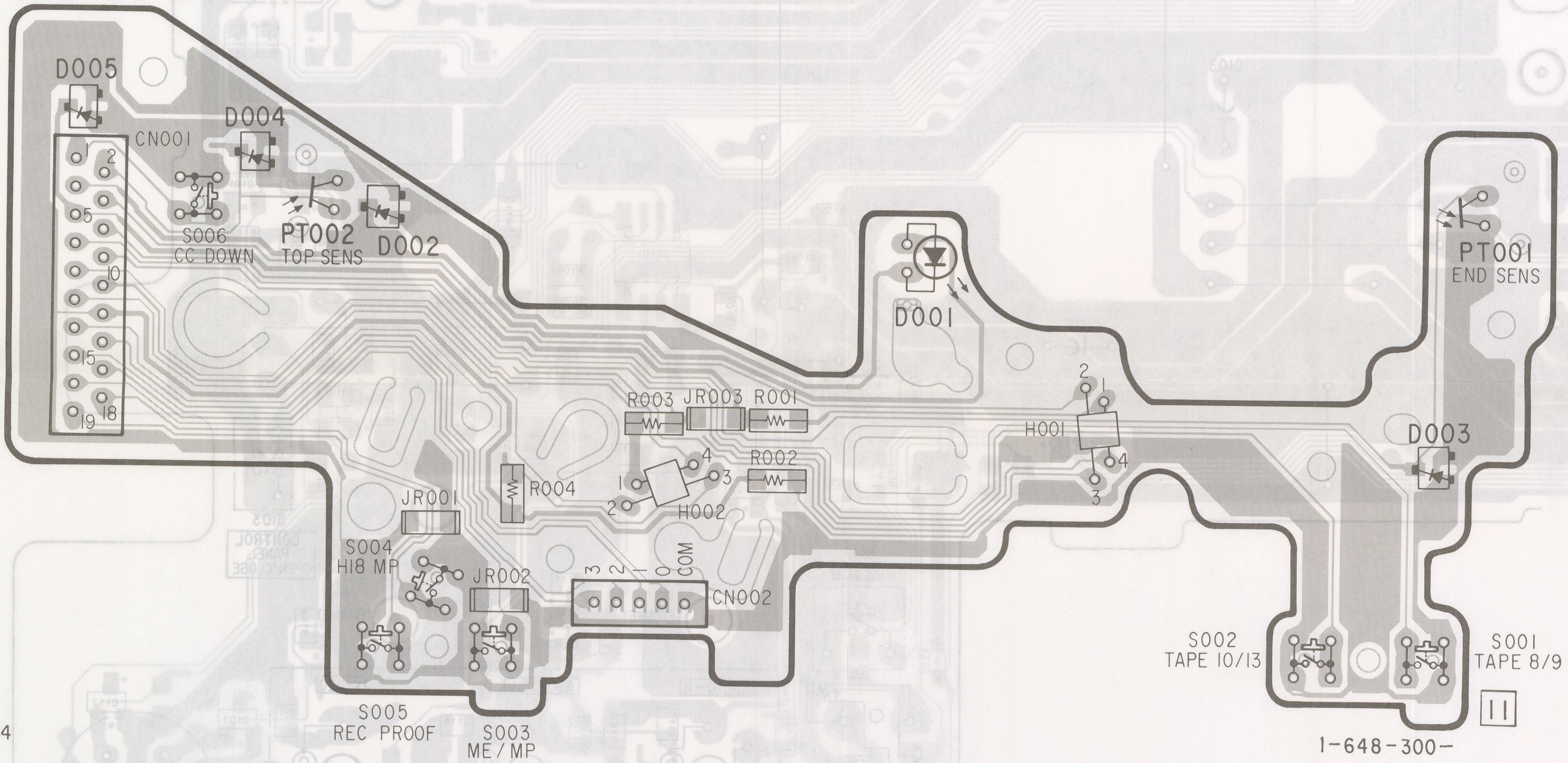
—Ref. No. CONTROL SWITCH BLOCK : 7000 series, MD-59 BOARD : 4000 series, VP-40 BOARD ; 5000 series—

(See page 4-71)
TO FM-16 BOARD CN103
CONTROL SWITCH BLOCK
MD-59 BOARD
VP-40 BOARD
IC302
MACRO VISION ENCODER
IC301
MC68HC05P7
MACRO VISION CONTROL
Q301 INV
MD BLOCK
TO MA-173 BOARD (1/5) CN011 (See page 4-44)
TO MA-173 BOARD (2/5) CN302 (See page 4-46)
TO RP-165 BOARD CN003 (See page 4-7)
TO MA-173 BOARD (1/5) CN006 (See page 4-43)
S450 JOG/SHUTTLE
REVERSE FORWARD
FLYING ERASE
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
HALL DEVICE
no mark:REC/PB mode (SP mode)
( ):REC mode (SP mode)
< >:PB mode (SP mode)
VP-40 BOARD
①
IC301 ㉖ REC/PB 6Vp-p (4MHz)

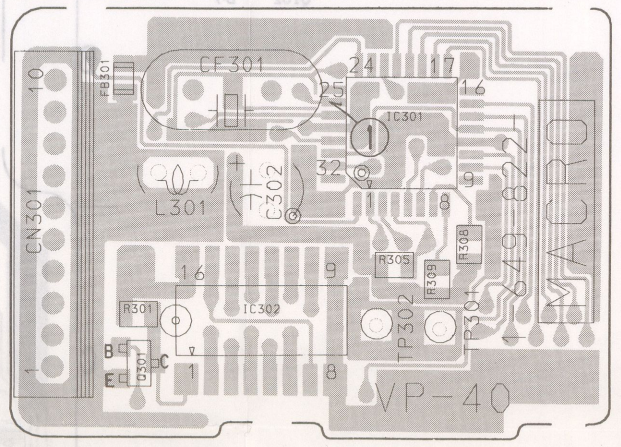
CONTROL SWITCH BLOCK (KEY MATRIX), MD-59 (MD BLOCK), VP-40 (COPY PROTECT) PRINTED WIRING BOARDS

—Ref. No. CONTROL SWITCH BLOCK : 7000 series, MD-59 BOARD : 4000 series, VP-40 BOARD : 5000 series—

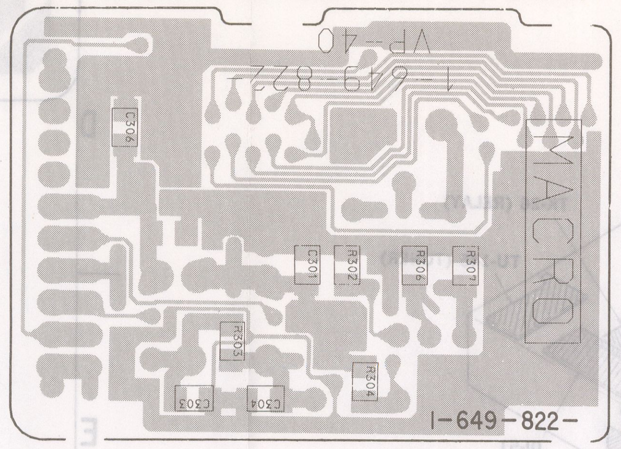
MD-59 BOARD

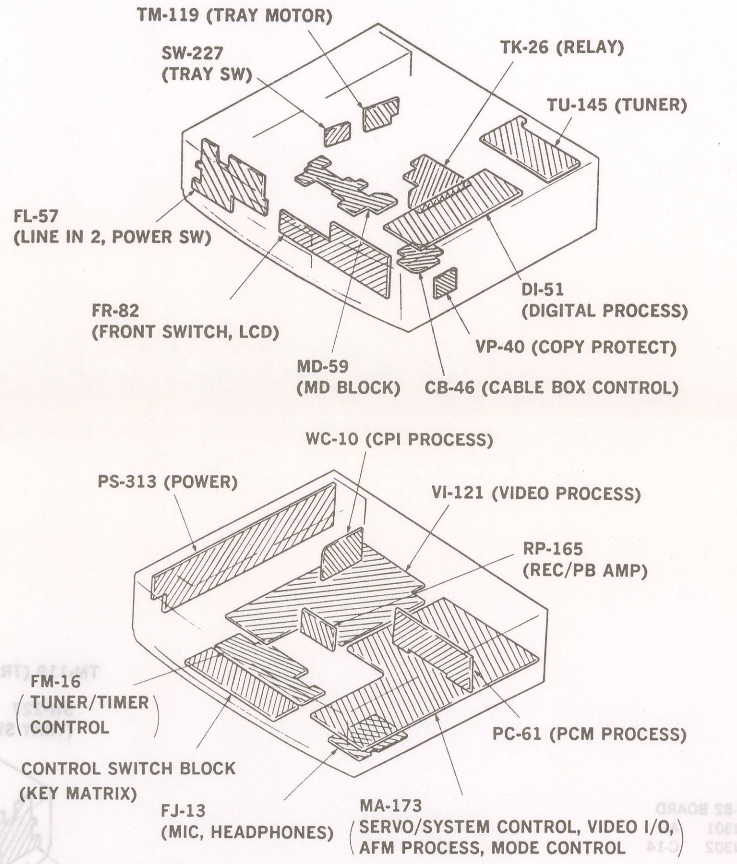

D005
CN001
D004
S006
CC DOWN
PT002
TOP SENS
D002
D001
PT001
END SENS
R003
JR003
R001
R002
R004
JR001
H001
H002
D003
S004
H18 MP
JR002
CN002
COM
S005
REC PROOF
S003
ME / MP
S002
TAPE 10/13
S001
TAPE 8/9
1-648-300-
11

VP-40 BOARD(COMPONENT SIDE)


CN301
CF301
IC301
L301
C307
1
24
16
9
8
VP-40
MACRO

VP-40 BOARD(CONDUCTOR SIDE)


MACRO
1-649-822-
14

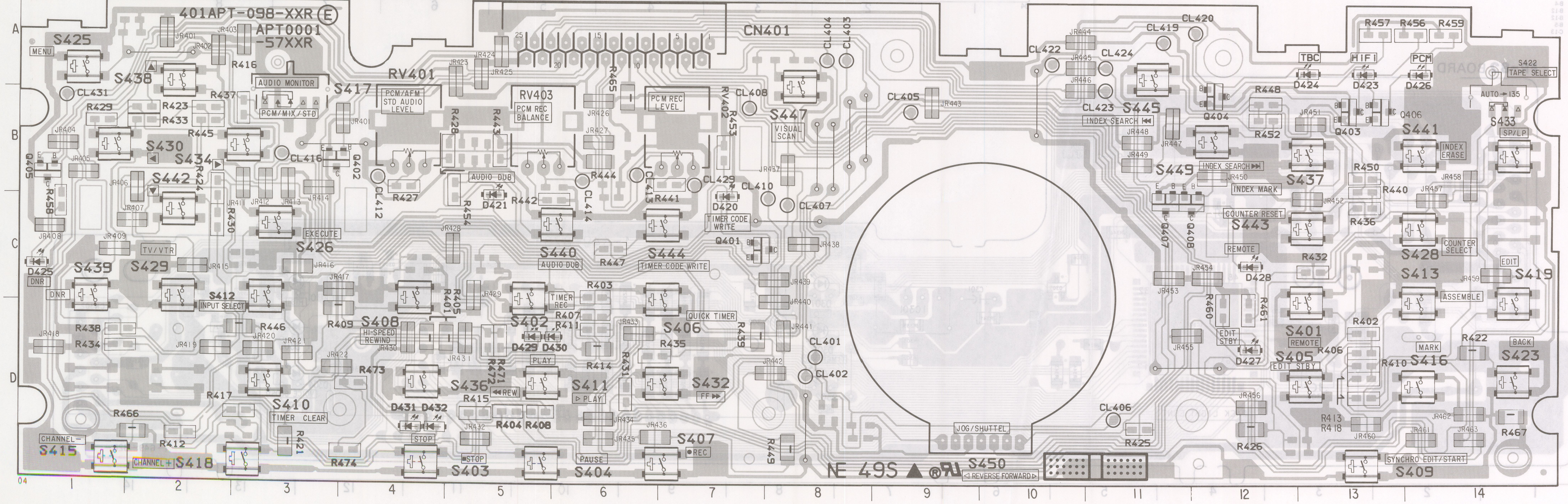

TM-119 (TRAY MOTOR)
SW-227 (TRAY SW)
TK-26 (RELAY)
TU-145 (TUNER)
FL-57 (LINE IN 2, POWER SW)
FR-82 (FRONT SWITCH, LCD)
DI-51 (DIGITAL PROCESS)
VP-40 (COPY PROTECT)
MD-59 (MD BLOCK)
CB-46 (CABLE BOX CONTROL)
WC-10 (CPI PROCESS)
PS-313 (POWER)
VI-121 (VIDEO PROCESS)
RP-165 (REC/PB AMP)
FM-16 (TUNER/TIMER CONTROL)
PC-61 (PCM PROCESS)
CONTROL SWITCH BLOCK (KEY MATRIX)
FJ-13 (MIC, HEADPHONES)
MA-173 (SERVO/SYSTEM CONTROL, VIDEO I/O, AFM PROCESS, MODE CONTROL)

CONTROL SWITCH BLOCK

CN401	A-6
D420	C-7
D421	C-5
D423	A-13
D424	A-13
D425	C-1
D426	A-14
D427	D-12
D428	C-12
D429	D-5
D430	D-6
D431	D-4
D432	D-4
Q401	C-7
Q402	B-3
Q403	B-13
Q404	B-12
Q405	B-1
Q406	B-13
Q407	C-11
Q408	C-11

04

CONTROL SWITCH BLOCK

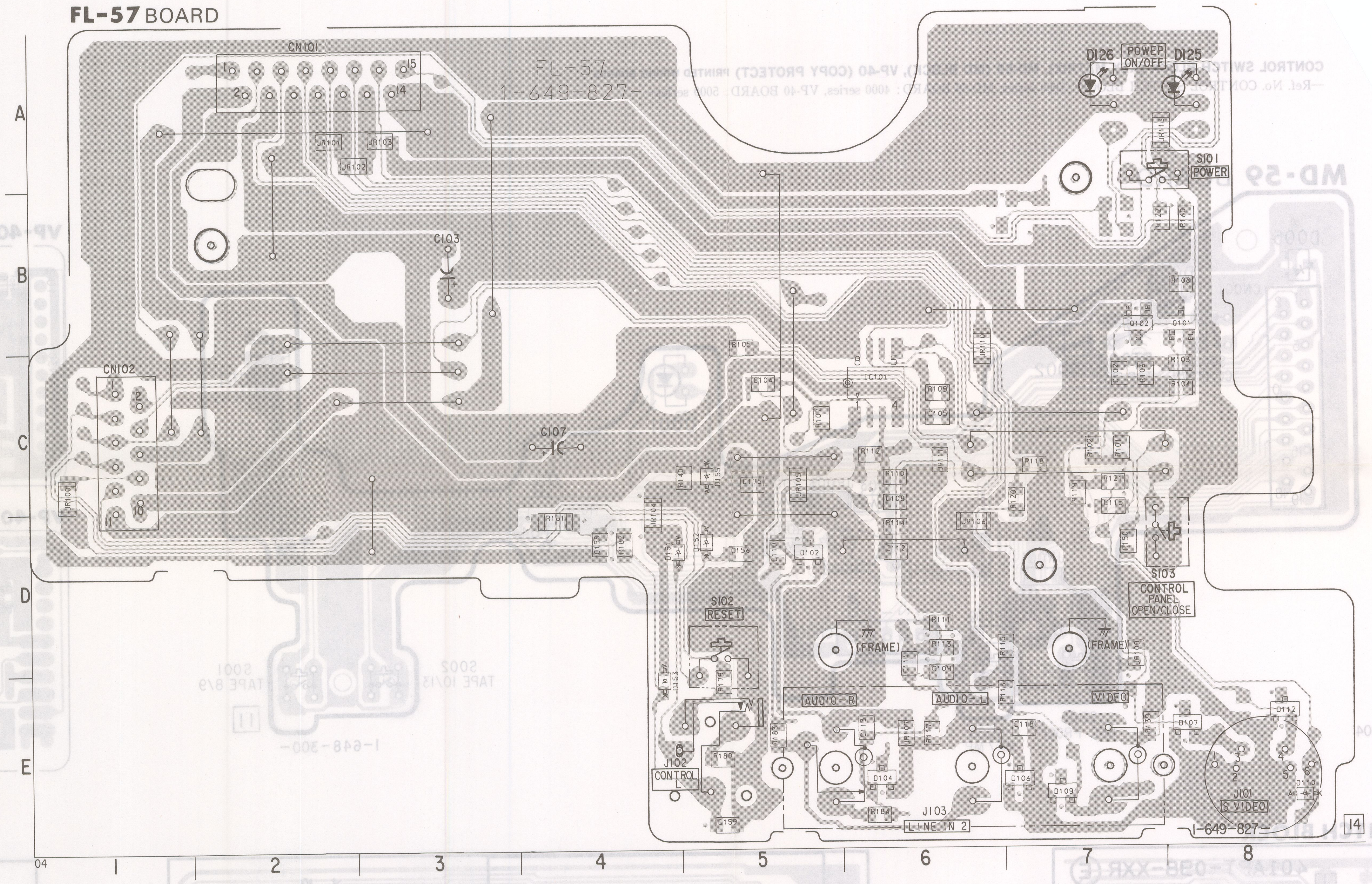

401APT-098-XXR Ⓔ
APT0001-57XXR
A
B
C
D
S425 MENU
S438
S430
S434
S442
S439 DNR
D425 DNR
S429 TV/VTR
S426 EXECUTE
S412 INPUT SELECT
S417 AUDIO MONITOR PCM/MIX/STD
RV401 PCM/AFM STD AUDIO LEVEL
RV403 PCM REC BALANCE
RV402 PCM REC LEVEL
AUDIO DUB
S440 AUDIO DUB
S444 TIMER CODE WRITE
D420 TIMER CODE WRITE
S447 VISUAL SCAN
S408 HI-SPEED REWIND
S402 TIMER REC
S406 QUICK TIMER
S436 ◀◀REW
S411 ▷PLAY
S432 FF▶▶
S410 TIMER CLEAR
S403 ■STOP
S404 PAUSE
S407 ●REC
S415 CHANNEL−
S418 CHANNEL+
CN401
S450 JOG/SHUTTEL ◁REVERSE FORWARD▷
S445 INDEX SEARCH ⏮
S449 INDEX SEARCH ⏭
S437 INDEX MARK
S443 COUNTER RESET
D428 REMOTE
S401 REMOTE
S405 EDIT STBY
D427 EDIT STBY
D424 TBC
D423 HIFI
D426 PCM
S422 TAPE SELECT AUTO→135
S433 SP/LP
S441 INDEX ERASE
S428 COUNTER SELECT
S413 ASSEMBLE
S419 EDIT
S416 MARK
S423 BACK
S409 SYNCHRO EDIT/START
Q401
Q402
Q403
Q404
Q405
Q406
Q407
Q408
NE 49S ▲
1
2
3
4
5
6
7
8
9
10
11
12
13
14

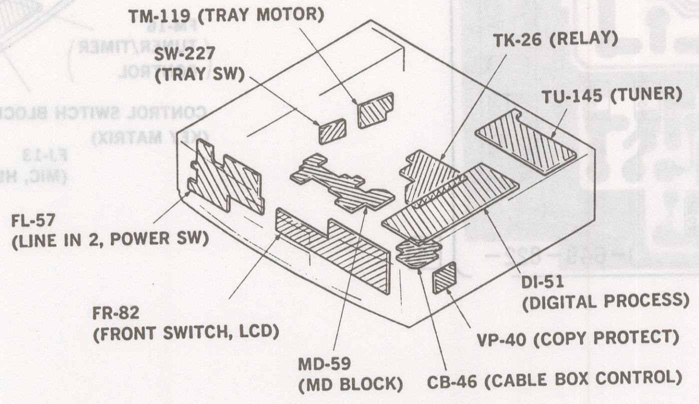
FR-82 (FRONT SWITCH, LCD), FL-57 (FRONT SWITCH, LINE IN) PRINTED WIRING BOARDS

—Ref. No. FR-82 and FL-57 BOARDS : 6000 series—

FL-57 BOARD

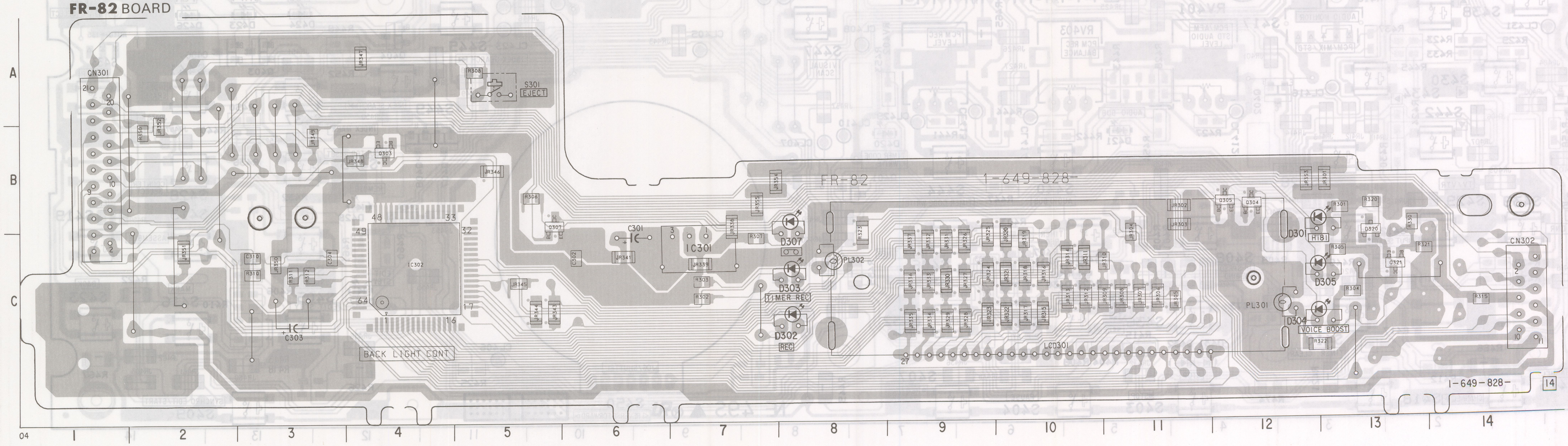
CN101	A-2
CN102	C-1
D102	D-5
D104	E-6
D106	E-7
D107	E-8
D109	E-7
D110	E-8
D112	E-8
D125	A-8
D126	A-7
D151	D-4
D152	D-5
D153	E-4
D155	C-5
IC101	C-6
Q101	B-8
Q102	B-7


FL-57 BOARD
FL-57
1-649-827-
CN101
CN102
D126
POWER ON/OFF
D125
S101 POWER
C103
C107
IC101
S102 RESET
S103 CONTROL PANEL OPEN/CLOSE
(FRAME)
AUDIO-R
AUDIO-L
VIDEO
J102 CONTROL
J103 LINE IN 2
J101 S VIDEO
1-649-827-
A
B
C
D
E
1
2
3
4
5
6
7
8


TM-119 (TRAY MOTOR)
SW-227 (TRAY SW)
TK-26 (RELAY)
TU-145 (TUNER)
FL-57 (LINE IN 2, POWER SW)
FR-82 (FRONT SWITCH, LCD)
MD-59 (MD BLOCK)
DI-51 (DIGITAL PROCESS)
VP-40 (COPY PROTECT)
CB-46 (CABLE BOX CONTROL)

FR-82 BOARD

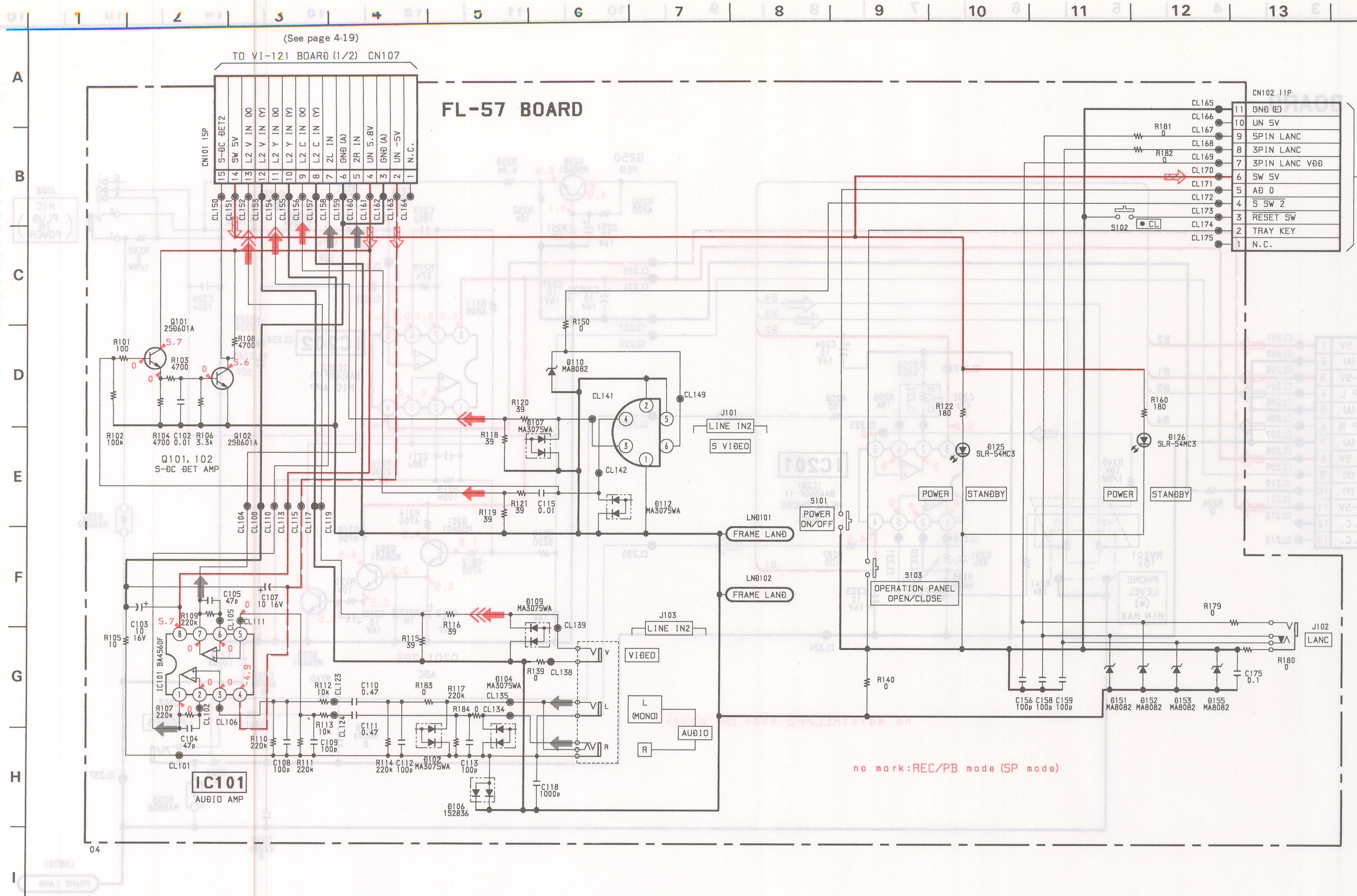
CN301	A-1
CN302	C-14
D301	C-13
D302	C-8
D303	C-8
D304	C-13
D305	C-13
D307	C-8
D320	C-13
IC301	C-7
IC302	C-4
Q303	B-4
Q304	B-12
Q305	B-12
Q307	B-5
Q321	C-13


FR-82 BOARD
CN301
S301 EJECT
IC302
C301
IC301
D307
D303 TIMER REC
D302 REC
PL302
FR-82
1-649-828-
LCD301
BACK LIGHT CONT
D301
H181
D305
PL301
D304
VOICE BOOST
CN302
1-649-828-
A
B
C
1
2
3
4
5
6
7
8
9
10
11
12
13
14

FRONT (1)

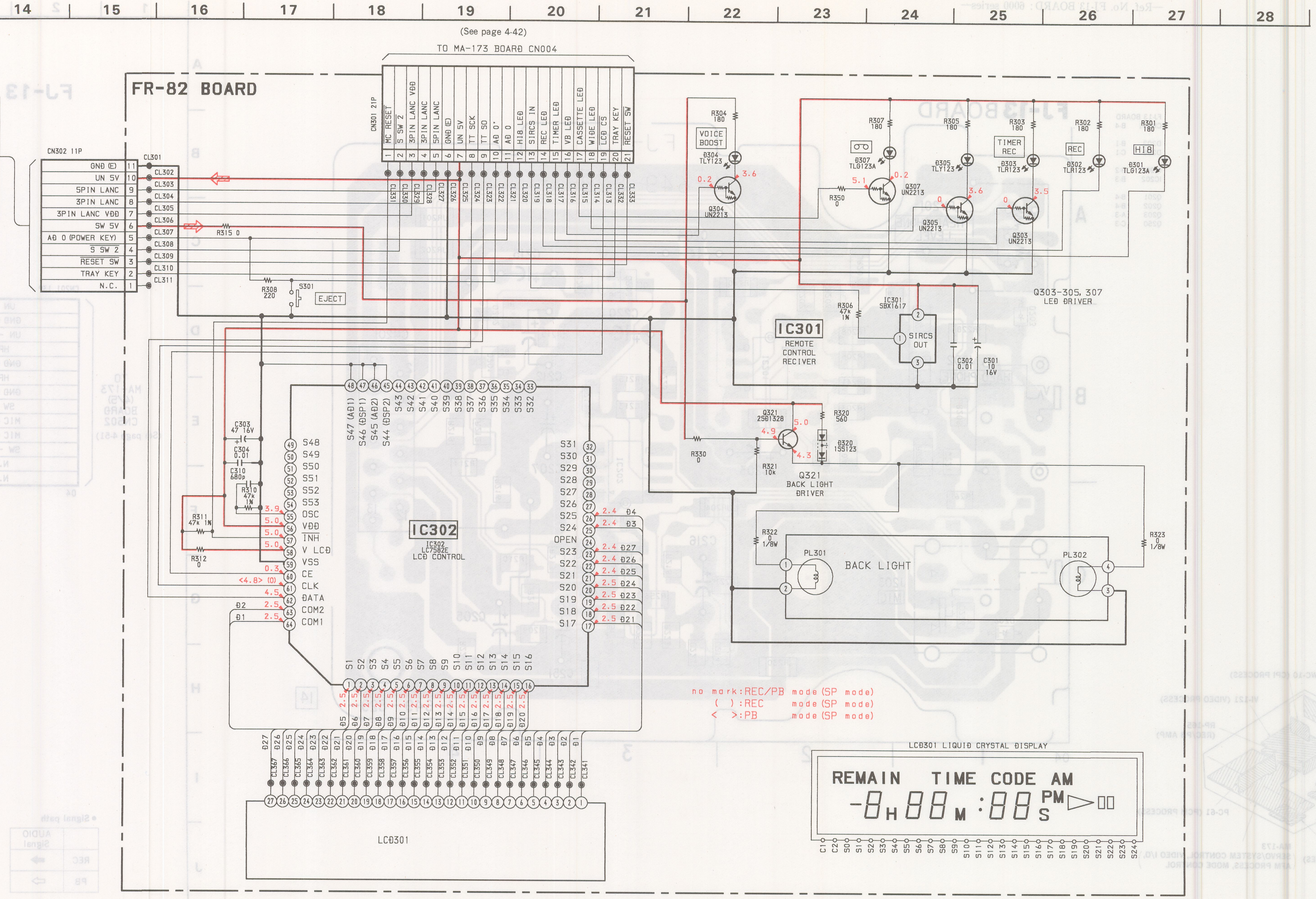
FR-82 (FRONT SWITCH, LCD), FL-57 (FRONT SWITCH, LINE IN) SCHEMATIC DIAGRAMS

—Ref. No. FR-82 and FL-57 BOARDS : 6000 series—


(See page 4-19)
TO VI-121 BOARD (1/2) CN107
FL-57 BOARD
CN101 15P
CN102 11P
Q101, 102
S-DC DET AMP
IC101
AUDIO AMP
J101
LINE IN2
S VIDEO
J103
LINE IN2
VIDEO
L
(MONO)
AUDIO
R
J102
LANC
S101
POWER ON/OFF
S103
OPERATION PANEL OPEN/CLOSE
LND101
FRAME LAMP
LND102
FRAME LAMP
POWER
STANDBY
no mark:REC/PB mode (SP mode)
04

• Signal path

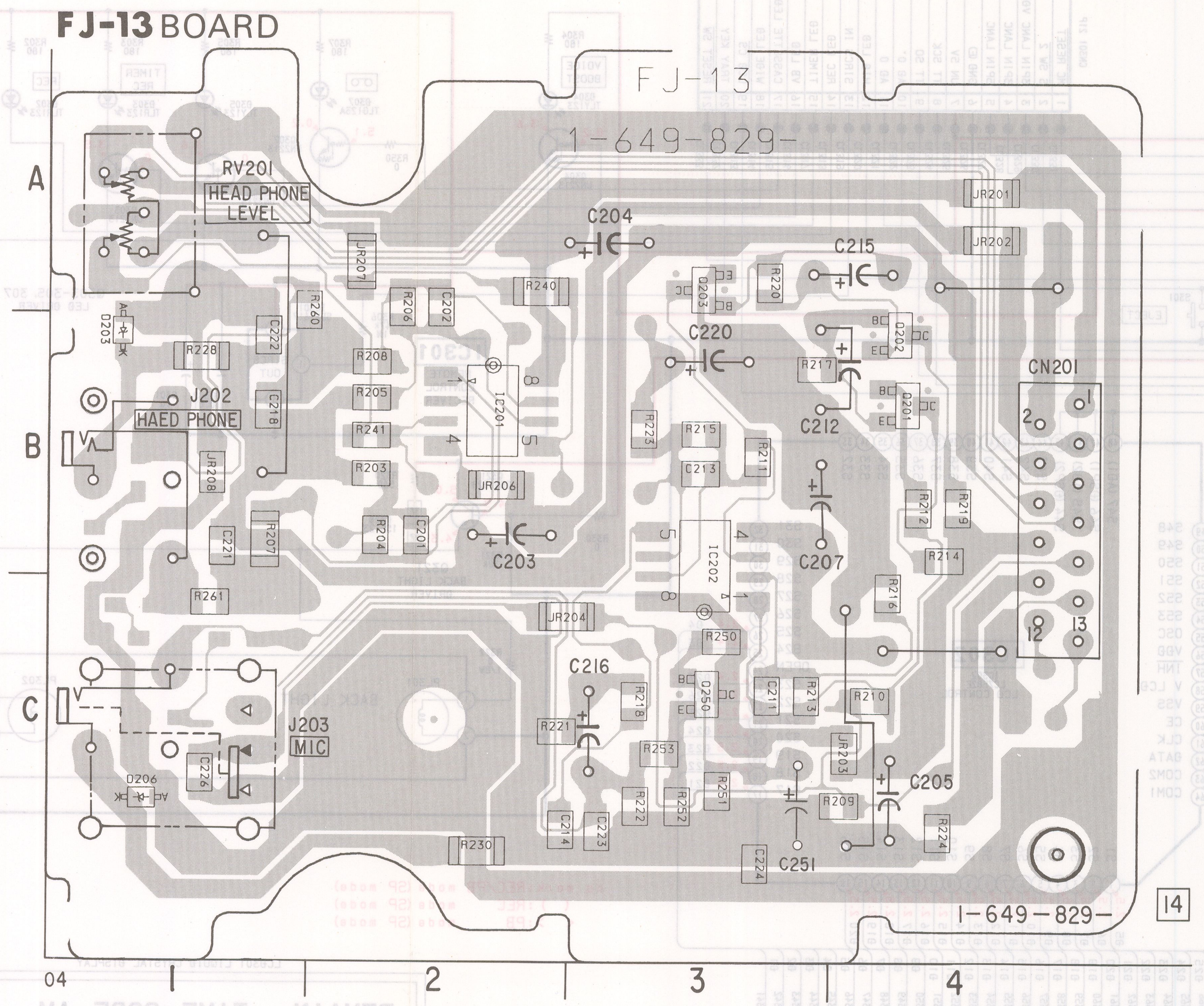
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

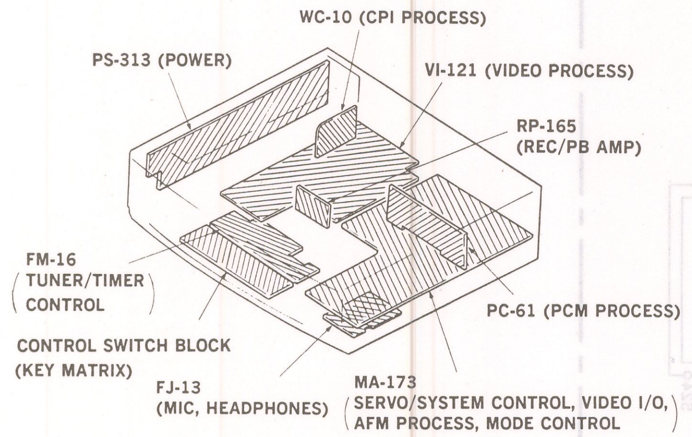

(See page 4-42)
TO MA-173 BOARD CN004
FR-82 BOARD
CN301 21P
CN302 11P
S301
EJECT
IC301
REMOTE CONTROL RECIVER
IC302
LCD CONTROL
Q303-305, 307
LED DRIVER
Q321
BACK LIGHT DRIVER
PL301
BACK LIGHT
PL302
VOICE BOOST
TIMER REC
REC
no mark:REC/PB mode (SP mode)
( ):REC mode (SP mode)
< >:PB mode (SP mode)
LCD301 LIQUID CRYSTAL DISPLAY
REMAIN TIME CODE AM
-8H 88M :88S PM
LCD301

FJ-13 (MIC, HEADPHONES) PRINTED WIRING BOARD

—Ref. No. FJ-13 BOARD: 6000 series—

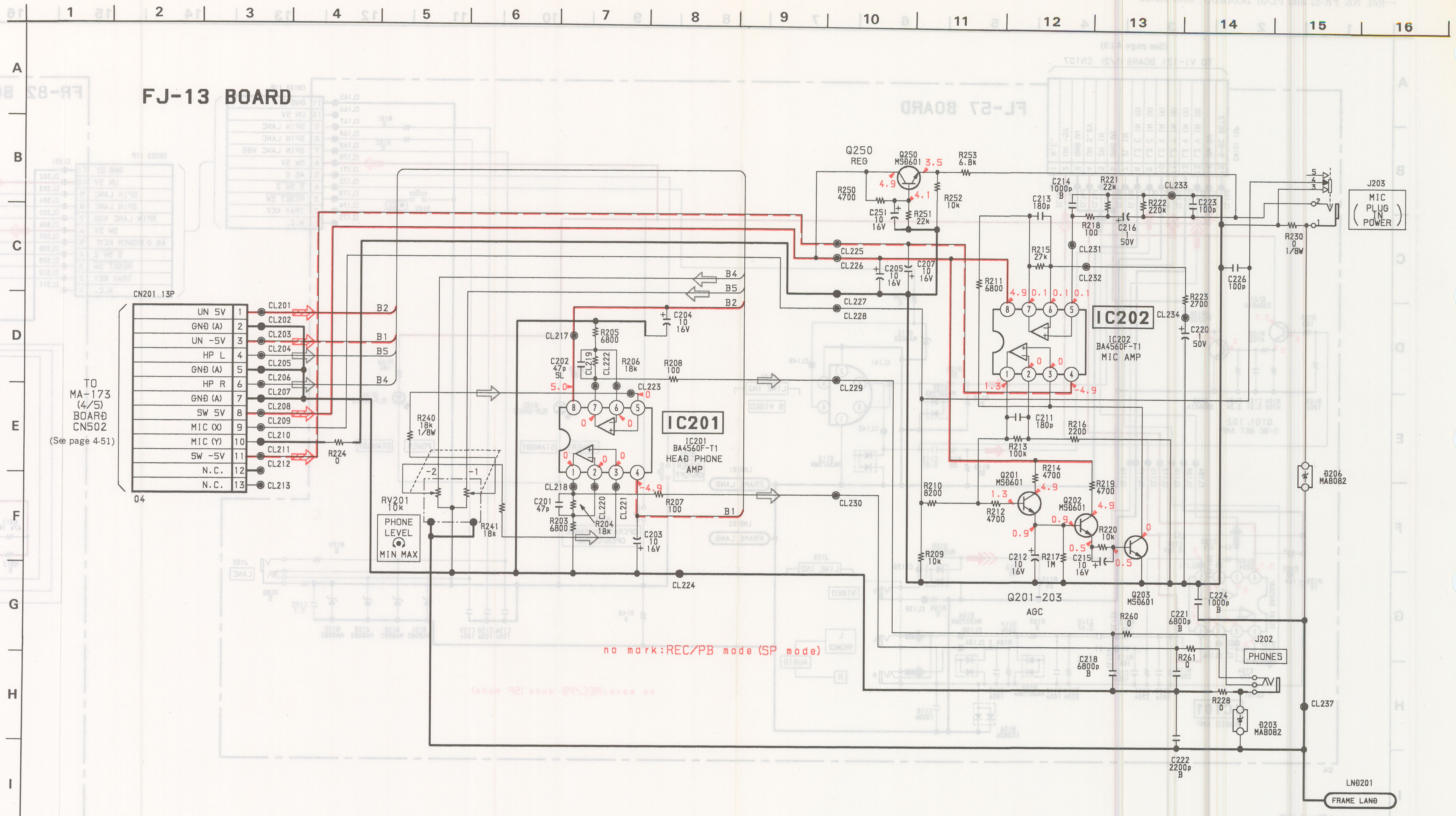
FJ-13 BOARD	
CN201	B-4
D203	B-1
D206	C-1
IC201	B-2
IC202	B-3
Q201	B-4
Q202	B-4
Q203	A-3
Q250	C-3


FJ-13 BOARD
FJ-13
1-649-829
RV201
HEAD PHONE LEVEL
J202
HAED PHONE
J203
MIC
CN201
C204
C215
C220
C212
C203
C207
C216
C205
C251
IC201
IC202
D203
D206
1-649-829
14
A
B
C
04
1
2
3
4


WC-10 (CPI PROCESS)
PS-313 (POWER)
VI-121 (VIDEO PROCESS)
RP-165 (REC/PB AMP)
FM-16 TUNER/TIMER CONTROL
PC-61 (PCM PROCESS)
CONTROL SWITCH BLOCK (KEY MATRIX)
FJ-13 (MIC, HEADPHONES)
MA-173 SERVO/SYSTEM CONTROL, VIDEO I/O, AFM PROCESS, MODE CONTROL

FJ-13 (MIC, HEADPHONES) SCHEMATIC DIAGRAM

—Ref. No. FJ-13 BOARD: 6000 series—


FJ-13 BOARD
CN201 13P
UN 5V 1
GND (A) 2
UN -5V 3
HP L 4
GND (A) 5
HP R 6
GND (A) 7
SW 5V 8
MIC (X) 9
MIC (Y) 10
SW -5V 11
N.C. 12
N.C. 13
CL201 CL202 CL203 CL204 CL205 CL206 CL207 CL208 CL209 CL210 CL211 CL212 CL213
04
TO MA-173 (4/5) BOARD CN502
(See page 4-51)
R224 0
R240 18k 1/8W
RV201 10k
PHONE LEVEL MIN MAX
R241 18k
IC201
IC201 BA4560F-T1 HEAD PHONE AMP
C202 47p SL
R205 6800
R206 18k
R208 100
C204 10 16V
C201 47p
R203 6800
R204 18k
R207 100
C203 10 16V
CL217 CL218 CL219 CL220 CL221 CL222 CL223 CL224
B1 B2 B4 B5
Q250 REG
Q250 MSD601
R250 4700
R251 22k
R252 10k
R253 6.8k
C251 10 16V
C205 10 16V
C207 10 16V
CL225 CL226 CL227 CL228 CL229 CL230
IC202
IC202 BA4560F-T1 MIC AMP
R211 6800
R215 27k
C213 180p
C214 1000p B
R218 100
R221 22k
R222 220k
C216 1 50V
C223 100p
CL231 CL232 CL233 CL234
R223 2700
C220 1 50V
C226 100p
R230 0 1/8W
J203
MIC (PLUG IN POWER)
C211 180p
R216 2200
R213 100k
R214 4700
R219 4700
R210 8200
R212 4700
R209 10k
Q201 MSD601
Q202 MSD601
Q203 MSD601
R220 10k
C212 10 16V
R217 1M
C215 10 16V
Q201-203 AGC
C224 1000p B
C221 6800p B
R260 0
R261 0
C218 6800p B
J202
PHONES
R228 0
C222 2200p B
D203 MA8082
D206 MA8082
CL237
LND201
FRAME LAND
no mark:REC/PB mode (SP mode)
5.0 0 0 0 0 0 0 -4.9
3.5 4.9 4.1
4.9 0.1 0.1 0.1 0 0 1.3 -4.9
4.9 1.3 0.9 0.9 4.9 0.5 0.5 0
A B C D E F G H I J
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

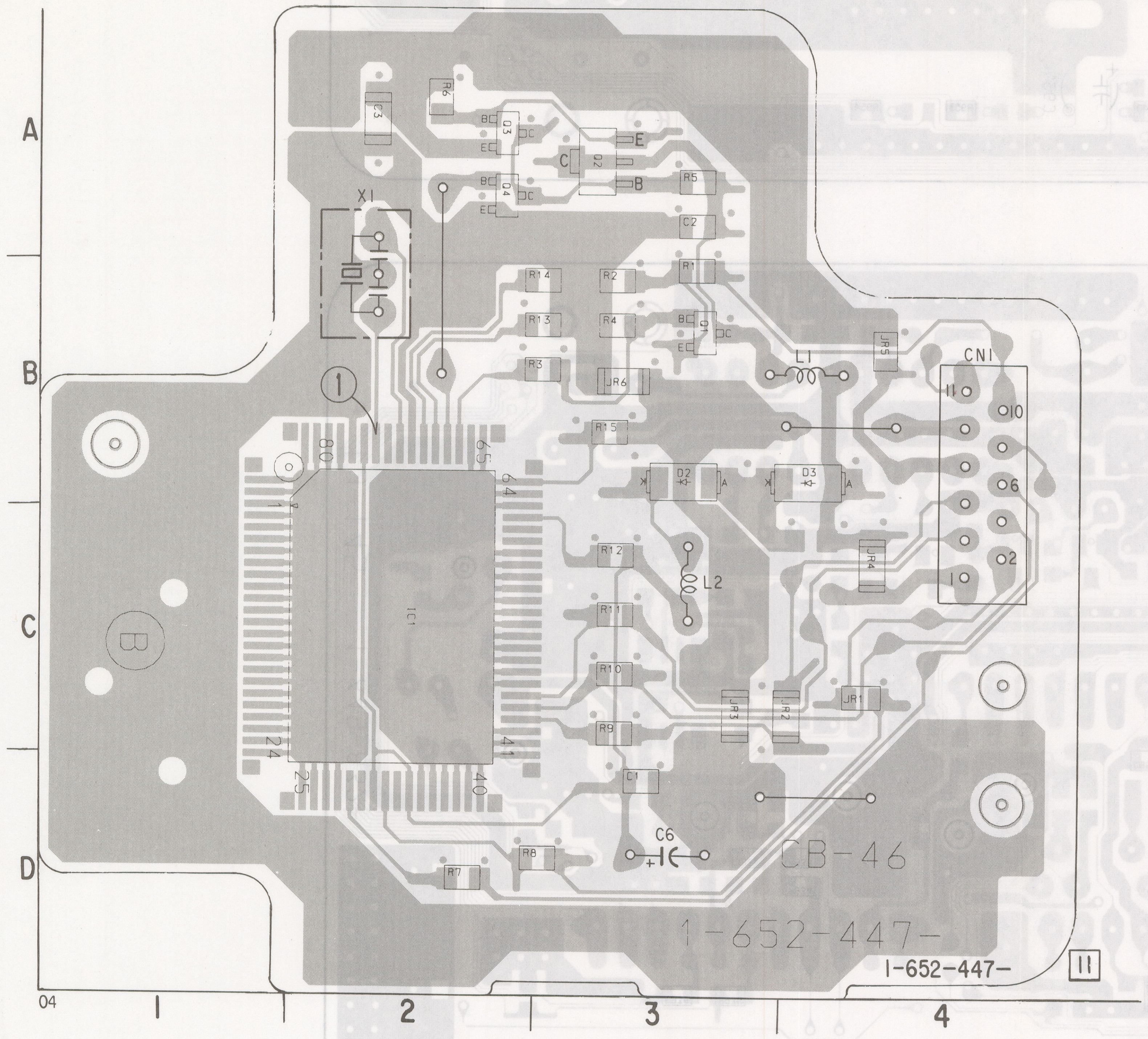
- **Signal path**

	AUDIO Signal
REC	➡
PB	⇨

CB-46 (CABLE BOX CONTROL) PRINTED WIRING BOARD

—Ref. No. CB-46 BOARD : 5000 series—

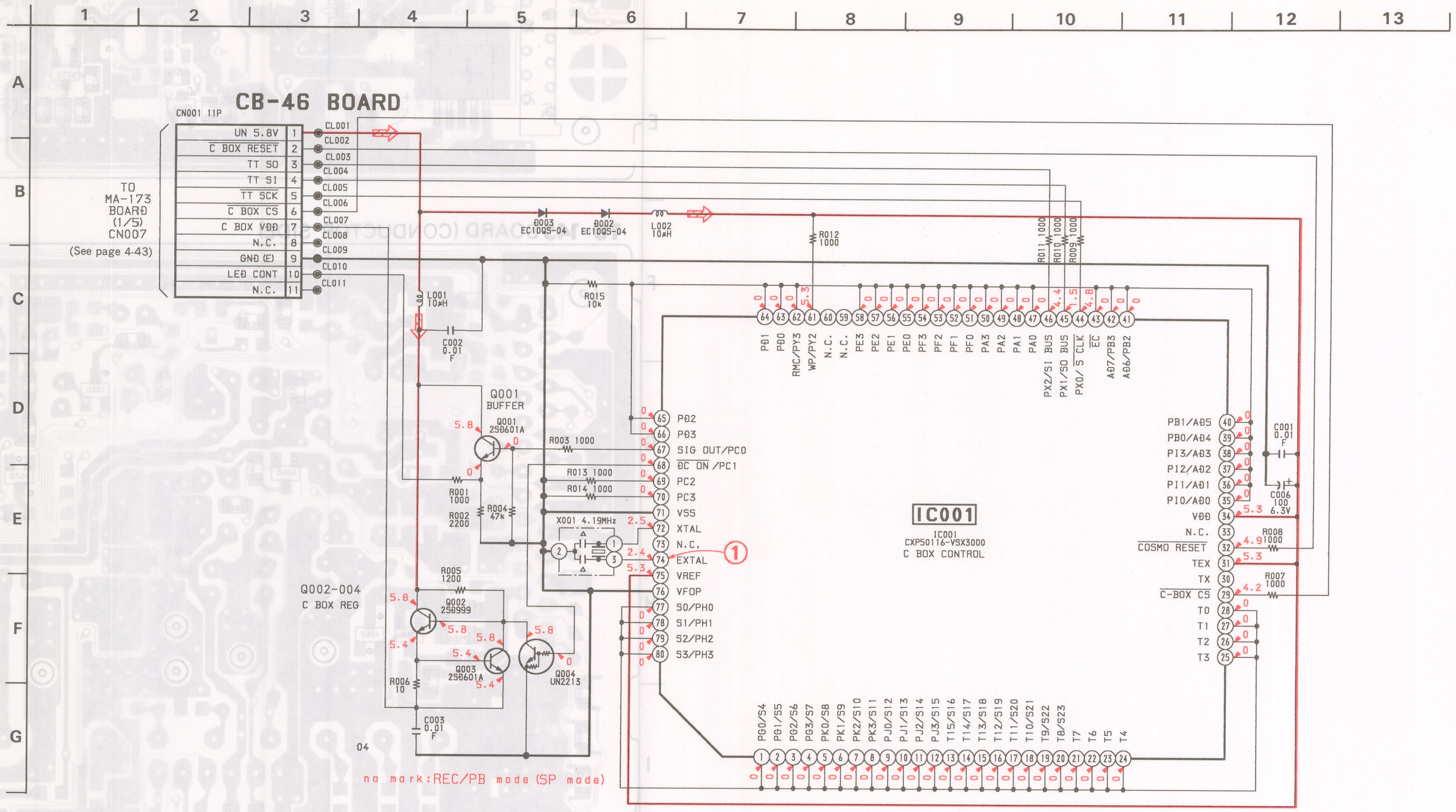
CB-46 BOARD


A
B
C
D
04
1
2
3
4
X1
CN1
IC1
L1
L2
D2
D3
C6
CB-46
1-652-447-
11

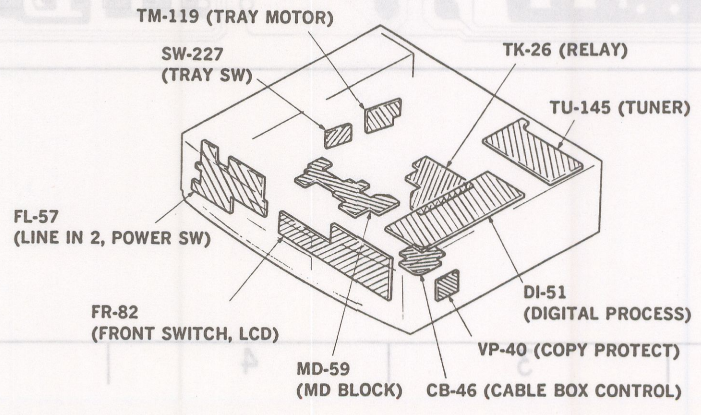
CB-46 BOARD	
CN001	B-4
D002	B-3
D003	B-4
IC001	C-2
Q001	B-3
Q002	A-3
Q003	A-2
Q004	A-2

CB-46 (CABLE BOX CONTROL) SCHEMATIC DIAGRAM

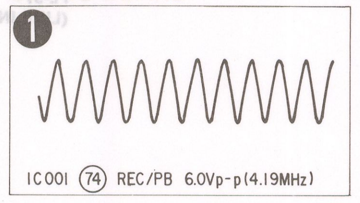
—Ref. No. CB-46 BOARD : 5000 series—


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
CB-46 BOARD
CN001 11P
TO
MA-173
BOARD
(1/5)
CN007
(See page 4-43)
UN 5.8V 1
C BOX RESET 2
TT SO 3
TT SI 4
TT SCK 5
C BOX CS 6
C BOX VDD 7
N.C. 8
GND (E) 9
LED CONT 10
N.C. 11
CL001
CL002
CL003
CL004
CL005
CL006
CL007
CL008
CL009
CL010
CL011
D003 EC10QS-04
D002 EC10QS-04
L002 10μH
R012 1000
L001 10μH
C002 0.01 F
R015 10k
Q001 BUFFER
Q001 2SD601A
R003 1000
R013 1000
R014 1000
R001 1000
R002 2200
R004 47k
X001 4.19MHz
Q002-004 C BOX REG
R005 1200
Q002 2SD999
Q003 2SD601A
Q004 UN2213
R006 10
C003 0.01 F
04
R011 1000
R010 1000
R009 1000
C001 0.01 F
C006 100 6.3V
R008 1000
R007 1000
IC001
IC001 CXP50116-VSX3000 C BOX CONTROL
①
PD1 64
PD0 63
RMC/PY3 62
WP/PY2 61
N.C. 60
N.C. 59
PE3 58
PE2 57
PE1 56
PE0 55
PF3 54
PF2 53
PF1 52
PF0 51
PA3 50
PA2 49
PA1 48
PA0 47
PX2/SI BUS 46
PX1/SO BUS 45
PX0/S CLK 44
EC 43
AD7/PB3 42
AD6/PB2 41
65 PD2
66 PD3
67 SIG OUT/PC0
68 DC ON /PC1
69 PC2
70 PC3
71 VSS
72 XTAL
73 N.C.
74 EXTAL
75 VREF
76 VFOP
77 S0/PH0
78 S1/PH1
79 S2/PH2
80 S3/PH3
PB1/AD5 40
PB0/AD4 39
PI3/AD3 38
PI2/AD2 37
PI1/AD1 36
PI0/AD0 35
VDD 34
N.C. 33
COSMO RESET 32
TEX 31
TX 30
C-BOX CS 29
T0 28
T1 27
T2 26
T3 25
PG0/S4 1
PG1/S5 2
PG2/S6 3
PG3/S7 4
PK0/S8 5
PK1/S9 6
PK2/S10 7
PK3/S11 8
PJ0/S12 9
PJ1/S13 10
PJ2/S14 11
PJ3/S15 12
T15/S16 13
T14/S17 14
T13/S18 15
T12/S19 16
T11/S20 17
T10/S21 18
T9/S22 19
T8/S23 20
T7 21
T6 22
T5 23
T4 24
5.8
5.4
5.3
4.4
1.5
4.8
4.9
4.2
2.5
2.4
0

no mark:REC/PB mode (SP mode)


TM-119 (TRAY MOTOR)
SW-227 (TRAY SW)
TK-26 (RELAY)
TU-145 (TUNER)
FL-57 (LINE IN 2, POWER SW)
FR-82 (FRONT SWITCH, LCD)
DI-51 (DIGITAL PROCESS)
VP-40 (COPY PROTECT)
MD-59 (MD BLOCK)
CB-46 (CABLE BOX CONTROL)

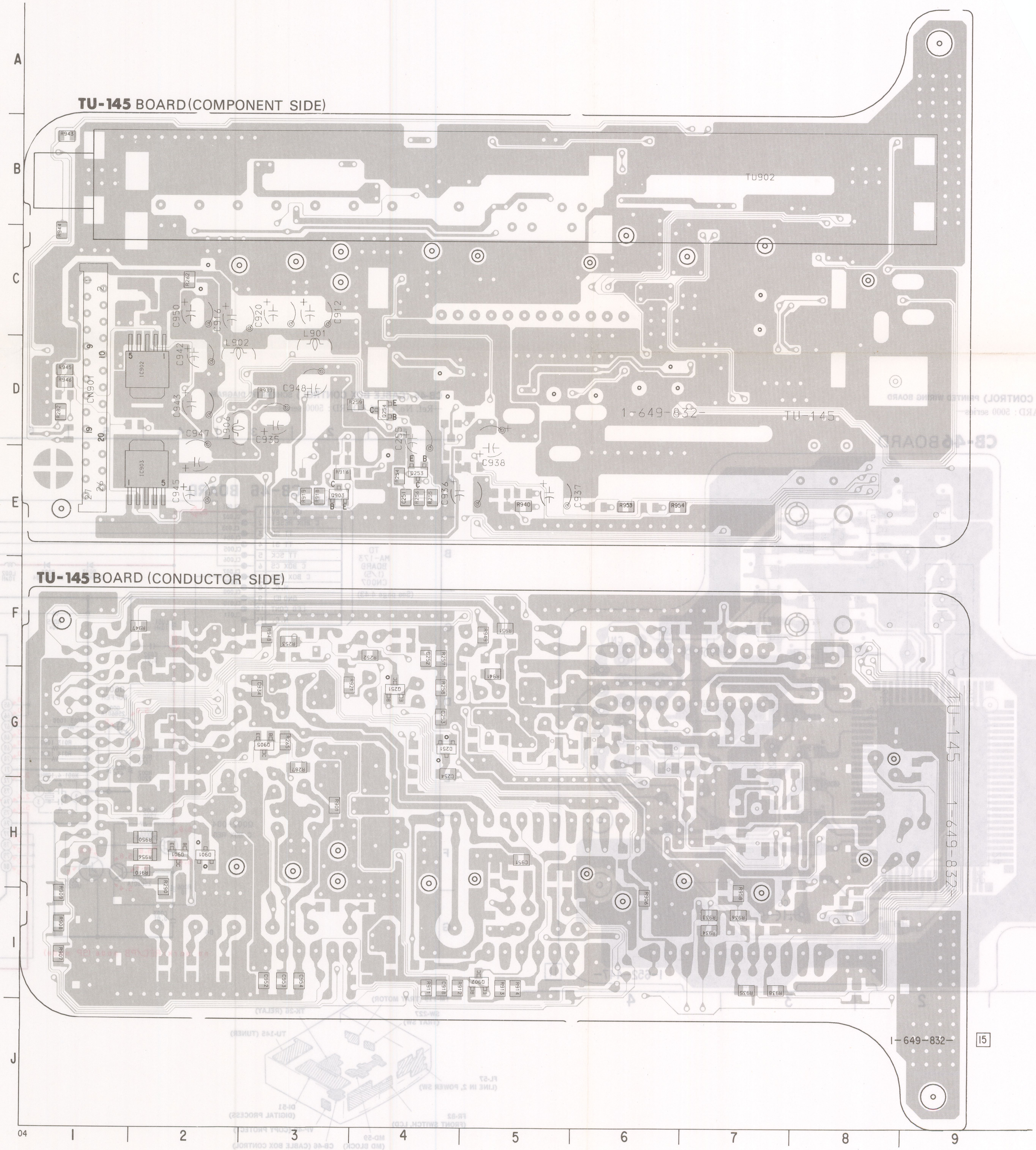
CB-46 BOARD



TU-145 (TUNER) PRINTED WIRING BOARD

—Ref. No. TU-145 BOARD : 5000 series—

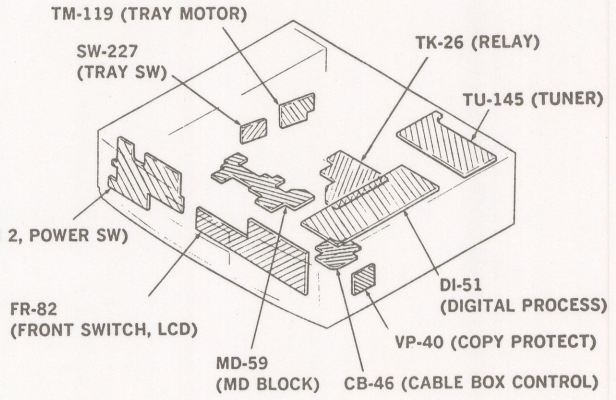
TU-145 BOARD	
CN901	D-1
D251	G-4
D901	H-2
IC902	D-2
IC903	E-2
Q251	G-4
Q253	E-4
Q254	D-4
Q901	H-2
Q902	I-5
Q903	E-3
Q905	G-3



TU-145 BOARD (COMPONENT SIDE)

TU-145 BOARD (CONDUCTOR SIDE)

A
B
C
D
E
F
G
H
I
J
04
1
2
3
4
5
6
7
8
9
TU902
CN901
IC902
IC903
L901
L902
C942
C943
C947
C948
C935
C938
C936
C937
C920
C912
C950
C946
Q903
Q253
Q254
R940
R953
R954
R943
R944
R945
1-649-832-
TU-145
1-649-832-
15



TM-119 (TRAY MOTOR)
SW-227
(TRAY SW)
TK-26 (RELAY)
TU-145 (TUNER)
FL-57
(LINE IN 2, POWER SW)
FR-82
(FRONT SWITCH, LCD)
MD-59
(MD BLOCK)
DI-51
(DIGITAL PROCESS)
VP-40 (COPY PROTECT)
CB-46 (CABLE BOX CONTROL)

TU-145 (TUNER) SCHEMATIC DIAGRAM

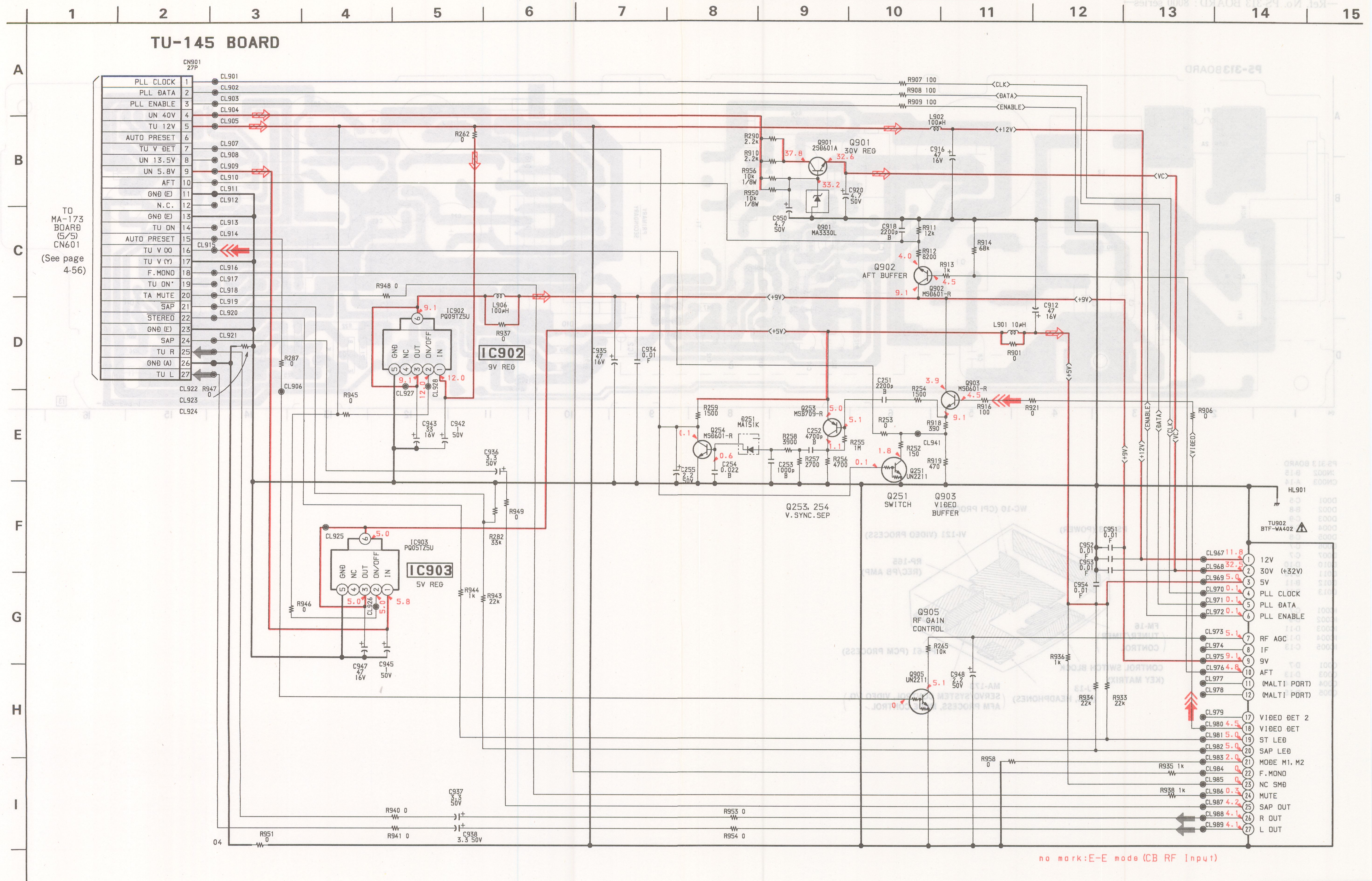
—Ref. No. TU-145 BOARD: 5000 series—

• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨

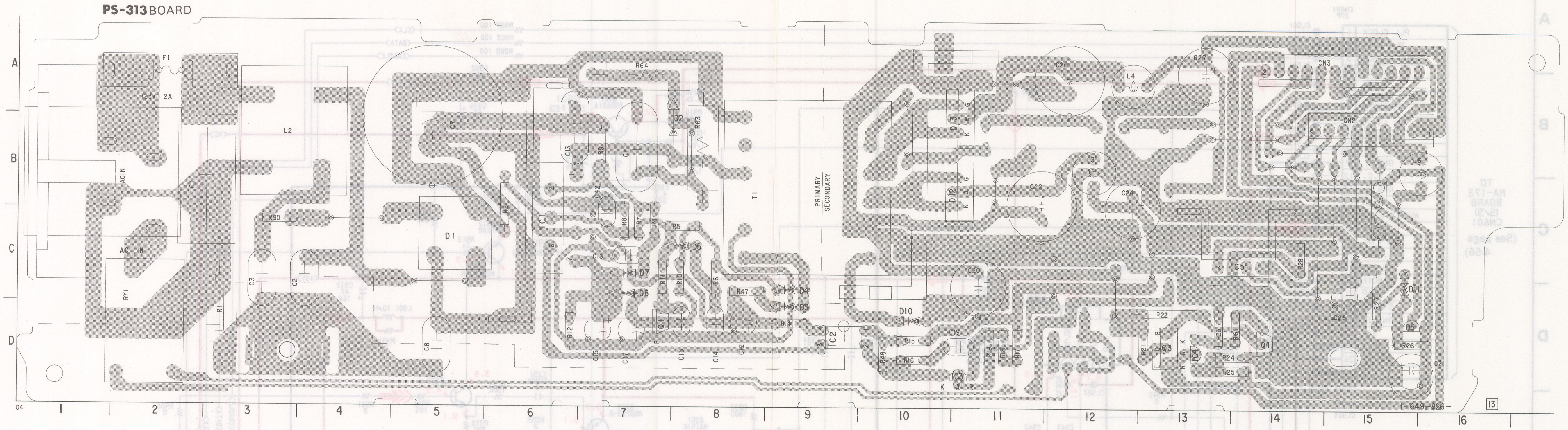
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

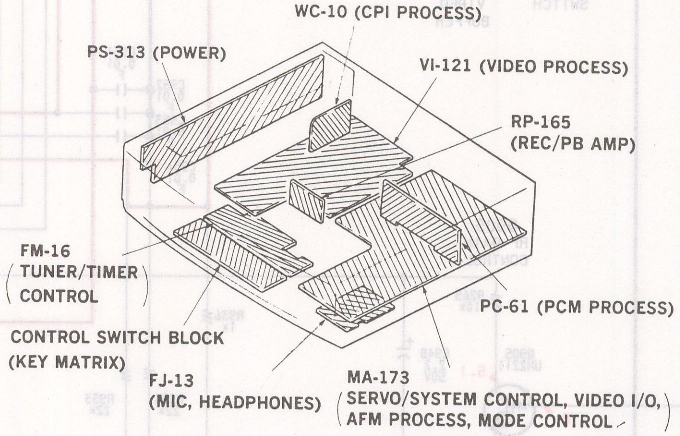

TU-145 BOARD
CN901 27P
1 PLL CLOCK
2 PLL DATA
3 PLL ENABLE
4 UN 40V
5 TU 12V
6 AUTO PRESET
7 TU V DET
8 UN 13.5V
9 UN 5.8V
10 AFT
11 GND (E)
12 N.C.
13 GND (E)
14 TU ON
15 AUTO PRESET
16 TU V (X)
17 TU V (Y)
18 F.MONO
19 TU ON'
20 TA MUTE
21 SAP
22 STEREO
23 GND (E)
24 SAP
25 TU R
26 GND (A)
27 TU L
TO MA-173 BOARD (5/5) CN601 (See page 4-56)
Q901 2SB601A 30V REG
D901 MA3330L
Q902 MS6601-R AFT BUFFER
IC902 PQ09TZ5U 9V REG
IC903 PQ05TZ5U 5V REG
Q251 UN2211 SWITCH
Q253 MSB709-R
Q254 MS6601-R
Q253, 254 V. SYNC. SEP
Q903 MS6601-R VIDEO BUFFER
D251 MA151K
Q905 UN2211 RF GAIN CONTROL
L902 100μH
L906 100μH
L901 10μH
<CLK> <DATA> <ENABLE> <+12V> <VC> <+9V> <+5V> <VIDEO>
HL901
TU902 BTF-WA402 ⚠
1 12V
2 30V (+32V)
3 5V
4 PLL CLOCK
5 PLL DATA
6 PLL ENABLE
7 RF AGC
8 IF
9 9V
10 AFT
11 (MALTI PORT)
12 (MALTI PORT)
17 VIDEO DET 2
18 VIDEO DET
19 ST LED
20 SAP LED
21 MODE M1, M2
22 F.MONO
23 NC SMD
24 MUTE
25 SAP OUT
26 R OUT
27 L OUT
no mark: E-E mode (CB RF Input)

PS-313 (POWER SUPPLY) PRINTED WIRING BOARD

—Ref. No. PS-313 BOARD: 8000 series—

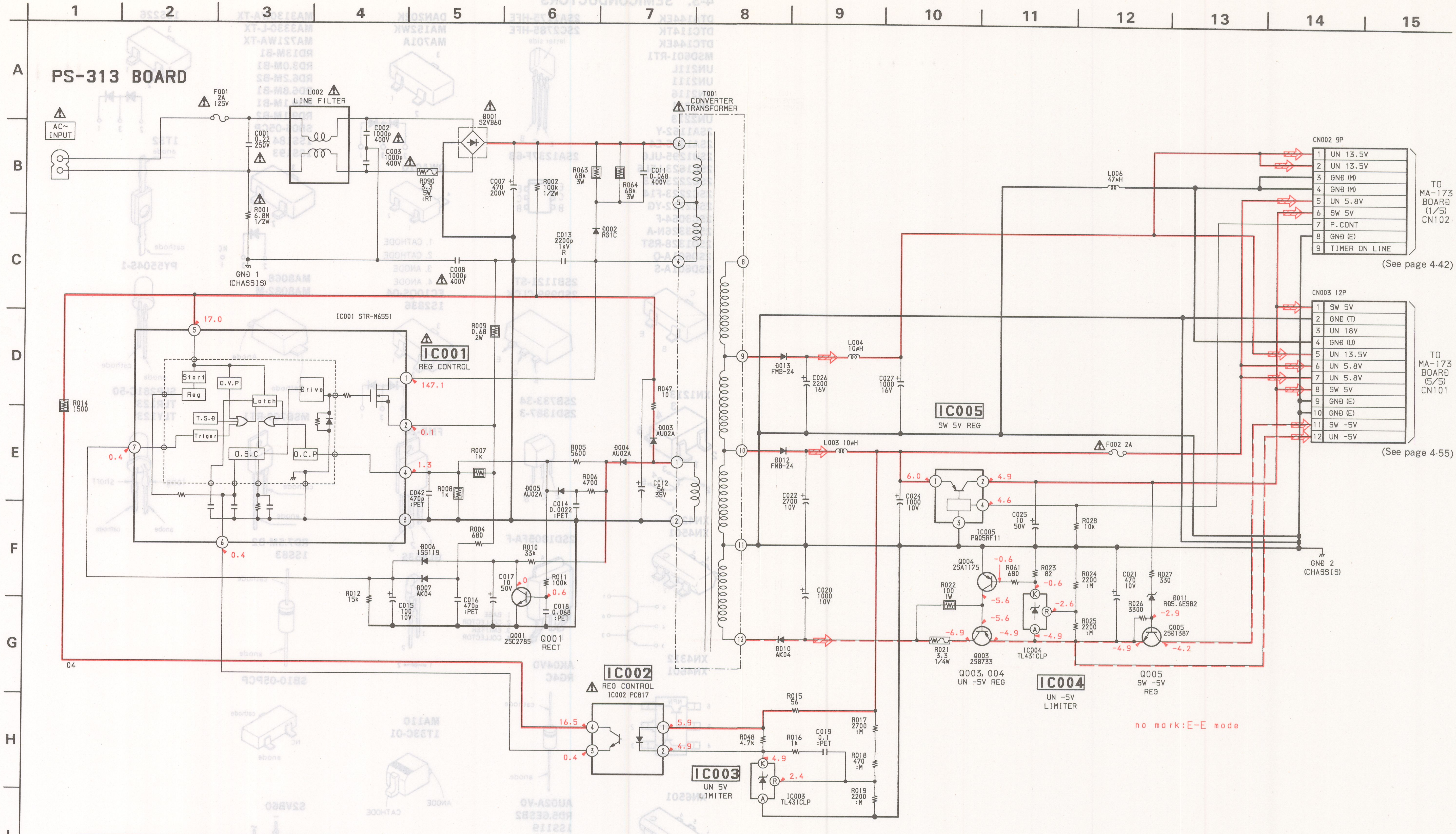

PS-313 BOARD
A
B
C
D
F1
125V 2A
L2
ACIN
AC IN
C1
RY1
R1
C3
C2
R90
C7
C8
D1
R2
IC1
C13
R9
C11
R64
D2
R63
C42
R8
R7
R4
R5
D5
C16
D7
D6
R11
R10
R6
R47
D4
D3
R12
C15
C17
Q1
C18
C14
C12
R14
IC2
T1
PRIMARY
SECONDARY
D13
D12
D10
R15
R16
R48
C19
IC3
R19
R18
R17
C26
C22
C20
L4
L3
C24
C27
CN3
CN2
L6
F2
IC5
R28
D11
R27
C25
R22
R21
Q3
IC4
R23
R61
R24
R25
Q4
Q5
R26
C21
1-649-826-
13
04
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

PS-313 BOARD	
CN002	B-15
CN003	A-14
D001	C-5
D002	B-8
D003	C-9
D004	C-9
D005	C-8
D006	C-7
D007	C-7
D010	D-10
D011	C-15
D012	B-11
D013	B-11
IC001	C-7
IC002	D-9
IC003	D-11
IC004	D-13
IC005	C-13
Q001	D-7
Q003	D-13
Q004	D-14
Q005	D-15


WC-10 (CPI PROCESS)
PS-313 (POWER)
VI-121 (VIDEO PROCESS)
RP-165 (REC/PB AMP)
FM-16 (TUNER/TIMER CONTROL)
PC-61 (PCM PROCESS)
CONTROL SWITCH BLOCK (KEY MATRIX)
FJ-13 (MIC, HEADPHONES)
MA-173 (SERVO/SYSTEM CONTROL, VIDEO I/O, AFM PROCESS, MODE CONTROL)

PS-313 (POWER SUPPLY) SCHEMATIC DIAGRAM

—Ref. No. PS-313 BOARD : 8000 series—


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
PS-313 BOARD
AC~ INPUT
F001 2A 125V
L002 LINE FILTER
C001 0.22 250V
R001 6.8M 1/2W
GND 1 (CHASSIS)
C002 1000p 400V
C003 1000p 400V
R090 3.3 5W :RT
D001 S2VB60
C007 470 200V
R002 100k 1/2W
R063 68k 3W
R064 68k 3W
C011 0.068 400V
D002 RG1C
C013 2200p 1kV R
C008 1000p 400V
T001 CONVERTER TRANSFORMER
IC001 STR-M6551
17.0
Start
Reg
O.V.P
Latch
Drive
T.S.D
Triger
O.S.C
O.C.P
147.1
0.1
1.3
0.4
R014 1500
R009 0.68 2W
IC001
REG CONTROL
R047 10
D003 AU02A
R007 1k
R005 5600
D004 AU02A
R006 4700
C012 56 35V
C042 470p :PET
R008 1k
D005 AU02A
C014 0.0022 :PET
R004 680
D006 1SS119
R010 33k
D007 AK04
R012 15k
C015 100 10V
C016 470p :PET
C017 10 50V
R011 100k
0.6
C018 0.068 :PET
Q001 2SC2785
Q001 RECT
04
D013 FMB-24
C026 2200 16V
L004 10μH
C027 1000 16V
IC005
SW 5V REG
D012 FMB-24
L003 10μH
C022 2700 10V
C024 1000 10V
C020 1000 10V
D010 AK04
F002 2A
6.0
4.9
4.6
C025 10 50V
IC005 PQ05RF11
R028 10k
Q004 2SA1175
-0.6
R061 680
R023 82
R022 100 1W
-5.6
-6.9
R021 3.3 1/4W
Q003 2SB733
Q003, 004
UN -5V REG
IC004 TL431CLP
IC004
UN -5V LIMITER
R024 2200 :M
R025 2200 :M
C021 470 10V
R027 330
D011 RD5.6ESB2
R026 3300
-2.9
Q005 2SB1387
-4.9
-4.2
Q005
SW -5V
REG
L006 47μH
GND 2 (CHASSIS)
IC002
REG CONTROL
IC002 PC817
16.5
0.4
5.9
4.9
R015 56
R048 4.7k
R016 1k
C019 0.1 :PET
R017 2700 :M
R018 470 :M
R019 2200 :M
2.4
IC003 TL431CLP
IC003
UN 5V LIMITER
no mark:E-E mode
CN002 9P
1 UN 13.5V
2 UN 13.5V
3 GND (M)
4 GND (M)
5 UN 5.8V
6 SW 5V
7 P.CONT
8 GND (E)
9 TIMER ON LINE
TO MA-173 BOARD (1/5) CN102
(See page 4-42)
CN003 12P
1 SW 5V
2 GND (T)
3 UN 18V
4 GND (U)
5 UN 13.5V
6 UN 5.8V
7 UN 5.8V
8 SW 5V
9 GND (E)
10 GND (E)
11 SW -5V
12 UN -5V
TO MA-173 BOARD (5/5) CN101
(See page 4-55)

I

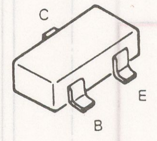
J

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

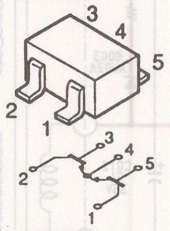
Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

4-3. SEMICONDUCTORS

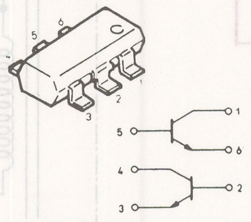
DTA144EK
DTC114TK
DTC144EK
MSD601-RT1
UN211L
UN2111
UN2116
UN2211
UN2213
2SA1162-Y
2SA1226-E4
2SB1295-UL6
2SC1623-L5L6
2SC2223-F13
2SC2223-F14
2SC2712-YG
2SC3064-F
2SC3326N-A
2SD1328-RST
2SD601A-Q
2SD601A-S



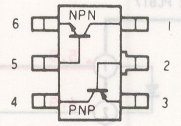
XN1213


3
4
5
2
1
3
4
5
2
1

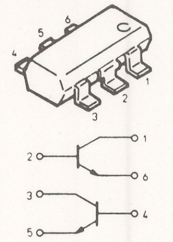
XN4213
XN4501


5
6
1
2
3
1
5
6
4
2
3

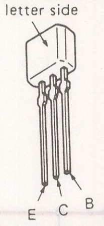
XN4312
XN4601


NPN
PNP
6
1
5
2
4
3

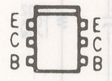
XN6501


5
6
4
1
2
3
1
2
6
3
4
5

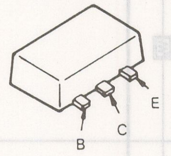
2SA1175-HFE
2SC2785-HFE


letter side
E
C
B

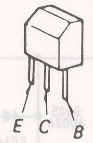
2SA1237F-6B



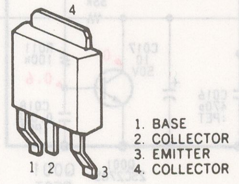
2SB1121-ST
2SD999-CLCK



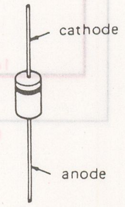
2SB733-34
2SD1387-3



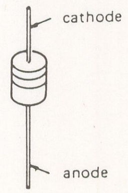
2SD1805FA-F


4
1
2
3
1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

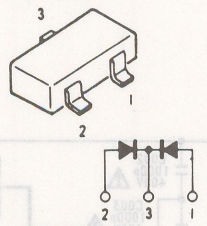
AK04V0
RG4C


cathode
anode

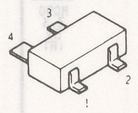
AU02A-V0
RD5.6ESB2
1SS119


cathode
anode

DAN202K
MA152WK
MA701A

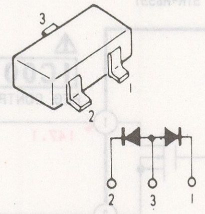


DWA010

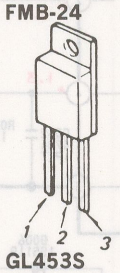


1. CATHODE
2. CATHODE
3. ANODE
4. ANODE

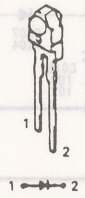
EC10QS-04
1S2836



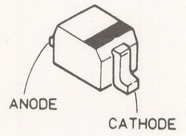
FMB-24



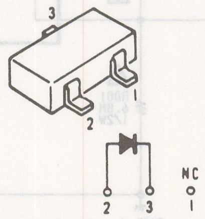
GL453S



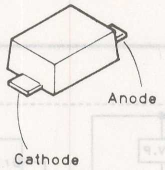
MA110
1T33C-01


ANODE
CATHODE

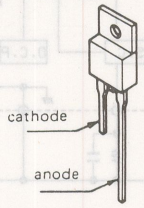
MA3130WA-TX
MA3330-L-TX
MA721WA-TX
RD13M-B1
RD3.0M-B1
RD6.2M-B2
RD6.8M-B1
RD9.1M-B1
RD9.1M-B2
SB05-05CP
1SS184
1SS193



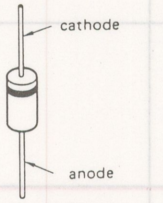
MA8068
MA8082-M


Anode
Cathode

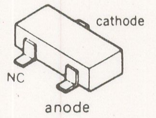
MSB709-RT1


cathode
anode

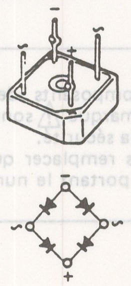
RD7.5M-B2
1SS83


cathode
anode

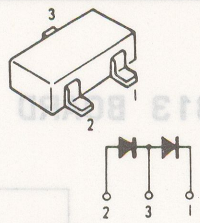
SB10-05PCP


cathode
NC
anode

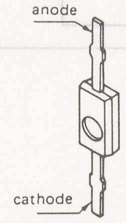
S2VB60



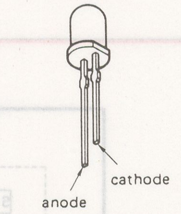
1SS226



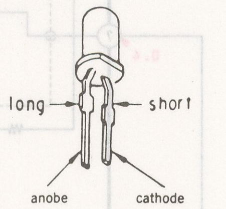
1T32


anode
cathode

PY5504S-1


anode
cathode

SLP281C-50
TLR123
TLY123


long
short
anobe
cathode

SECTION 5
REPAIR PARTS LIST

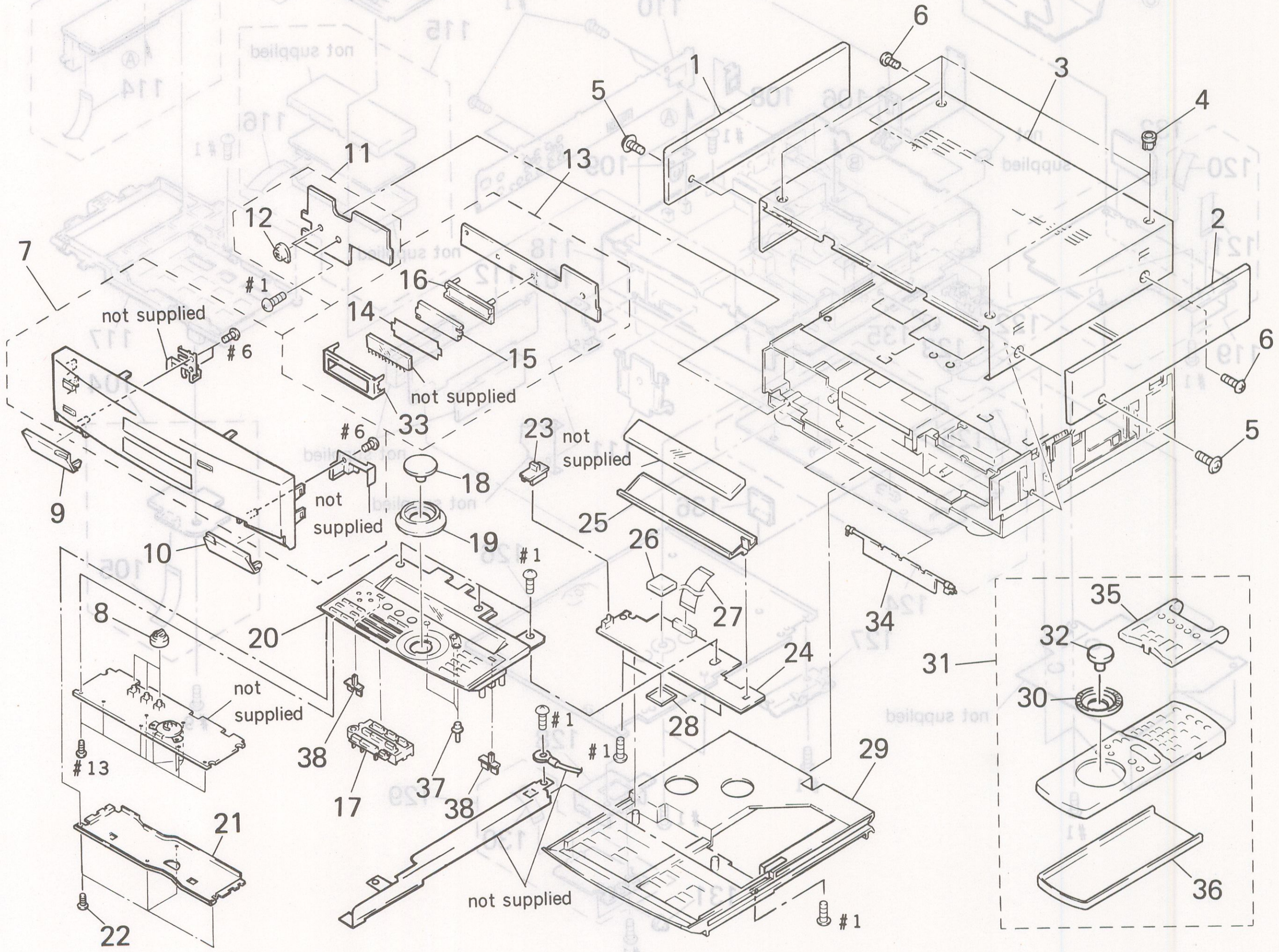
5-1. EXPLODED VIEWS

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example :
  KNOB, BALANCE (WHITE)... (RED)
  ↑ Parts Color ↑ Cabinet's Color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

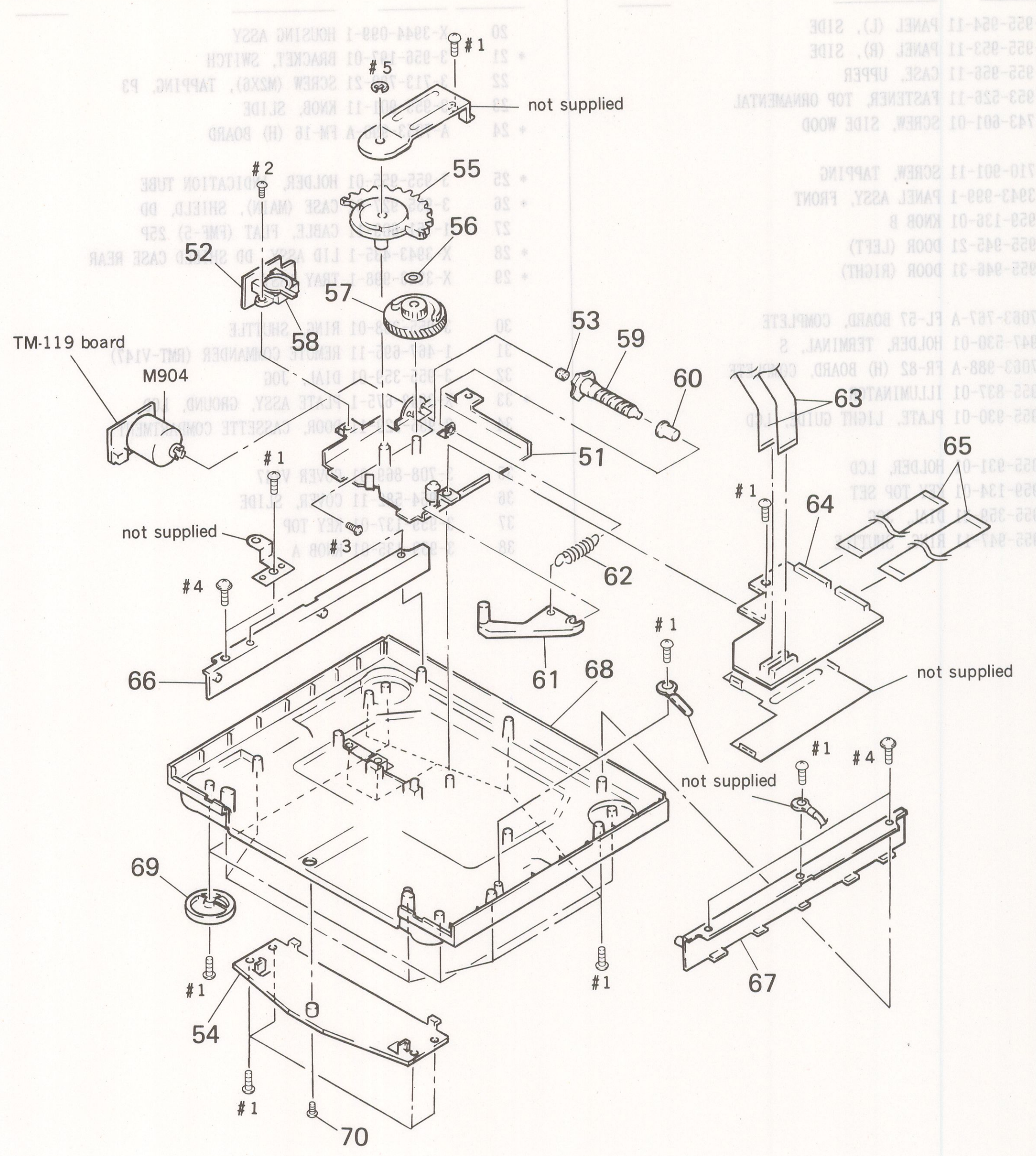
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5-1-1. CABINET AND FRONT PANEL ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	3-955-954-11	PANEL (L), SIDE	
2	3-955-953-11	PANEL (R), SIDE	
* 3	3-955-956-11	CASE, UPPER	
4	3-953-526-11	FASTENER, TOP ORNAMENTAL	
5	3-743-601-01	SCREW, SIDE WOOD	
6	3-710-901-11	SCREW, TAPPING	
7	X-3943-999-1	PANEL ASSY, FRONT	
8	3-959-136-01	KNOB B	
9	3-955-945-21	DOOR (LEFT)	
10	3-955-946-31	DOOR (RIGHT)	
* 11	A-7063-767-A	FL-57 BOARD, COMPLETE	
* 12	3-947-530-01	HOLDER, TERMINAL, S	
* 13	A-7063-988-A	FR-82 (H) BOARD, COMPLETE	
14	3-955-837-01	ILLUMINATOR	
* 15	3-955-930-01	PLATE, LIGHT GUIDE, LCD	
* 16	3-955-931-01	HOLDER, LCD	
17	3-959-134-01	KEY TOP SET	
18	3-955-359-31	DIAL, JOG	
19	3-955-947-11	RING, SHUTTLE	
20	X-3944-099-1	HOUSING ASSY	
* 21	3-956-197-01	BRACKET, SWITCH	
22	3-713-790-21	SCREW (M2X6), TAPPING, P3	
23	3-955-901-11	KNOB, SLIDE	
* 24	A-7053-990-A	FM-16 (H) BOARD	
* 25	3-955-955-01	HOLDER, INDICATION TUBE	
* 26	3-955-927-01	CASE (MAIN), SHIELD, DD	
27	1-751-609-11	CABLE, FLAT (FMF-5) 25P	
* 28	X-3943-435-1	LID ASSY, DD SHIELD CASE REAR	
* 29	X-3943-998-1	TRAY ASSY	
30	3-955-358-01	RING, SHUTTLE	
31	1-467-695-11	REMOTE COMMANDER (RMT-V147)	
32	3-955-359-01	DIAL, JOG	
* 33	X-3943-675-1	PLATE ASSY, GROUND, LCD	
34	3-955-929-11	DOOR, CASSETTE COMPARTMENT	
35	3-708-869-01	COVER V147	
36	3-954-582-11	COVER, SLIDE	
37	3-959-137-01	KEY TOP	
38	3-959-135-01	KNOB A	

5-1-2. TRAY CHASSIS COMPLETE ASSEMBLY

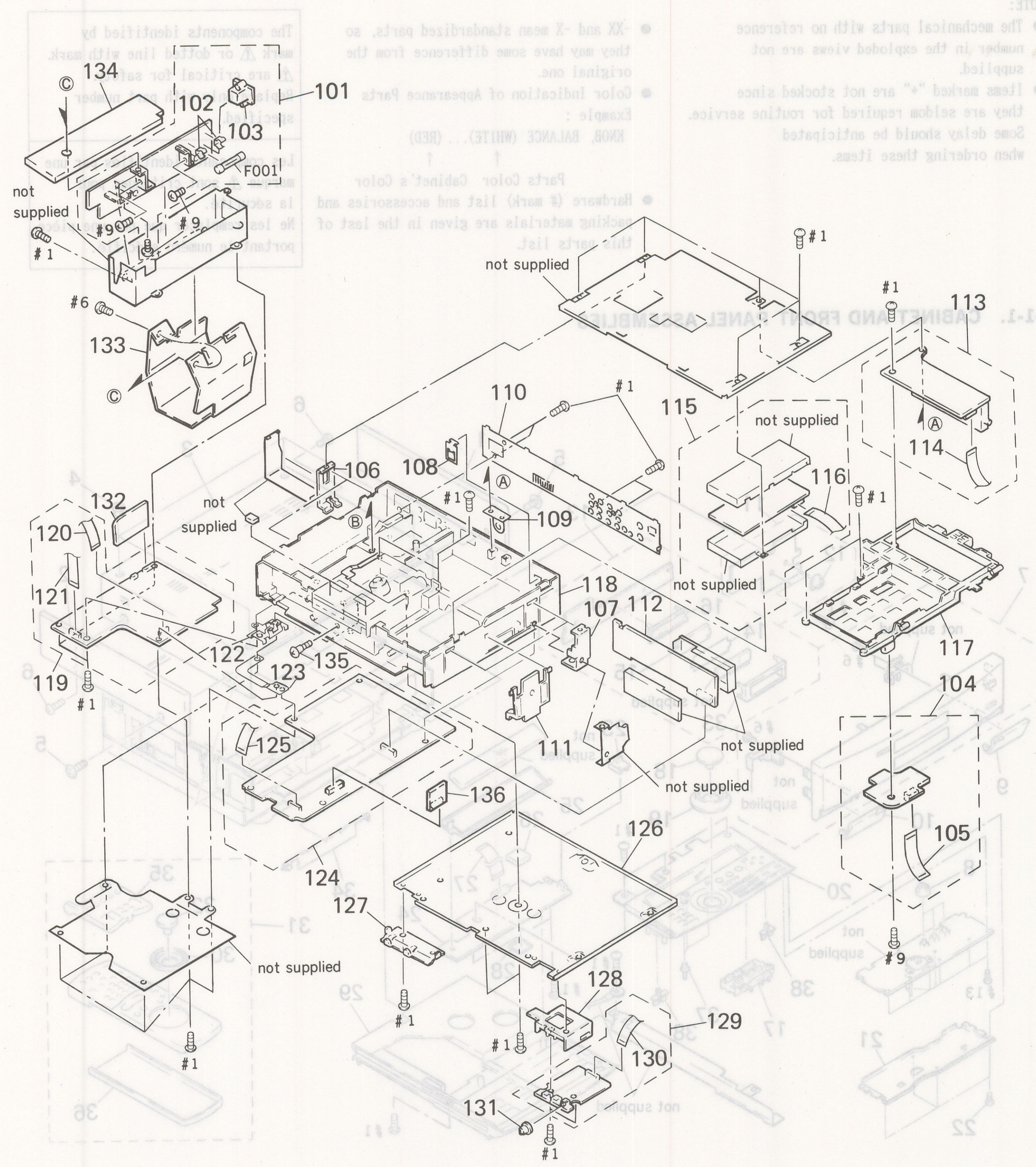


#1
#5
not supplied
#2
55
56
52
57
58
TM-119 board
M904
53
59
60
63
65
51
#1
64
not supplied
#3
62
#4
66
61
68
#1
not supplied
#1
#4
not supplied
69
#1
54
#1
67
#1
70

Ref. No.	Part No.	Description	Remark
* 51	X-3943-358-1	CHASSIS ASSY, DRIVING	
* 52	1-650-413-11	SW-227 BOARD	
53	3-956-686-01	RUBBER, JOINT	
54	X-3943-361-1	STAY ASSY	
55	3-955-940-01	GEAR, FLAT	
56	3-696-510-01	WASHER (3), STOPPER	
57	3-955-925-01	GEAR, HELICAL	
58	1-571-300-21	SWITCH, ROTARY	
59	3-736-100-01	GEAR (FL), WORM	
60	3-716-144-02	RETAINER, WORM	
61	3-955-924-01	ARM, LOCK	

Ref. No.	Part No.	Description	Remark
62	3-955-833-01	SPRING, TENSION (LOCK ARM)	
63	1-751-601-11	CABLE, FLAT (FMT-2) 27P	
* 64	A-7063-759-A	TK-26 BOARD, COMPLETE	
65	1-765-141-11	CABLE, FLAT (FMT-7) 25P	
66	X-3943-359-1	PLATE ASSY (L), FULCRUM	
67	X-3943-360-1	PLATE ASSY (R), FULCRUM	
* 68	3-955-952-11	CHASSIS, TRAY	
69	3-951-093-21	INSULATOR	
70	3-713-790-21	SCREW (M2X6), TAPPING, P3	
M904	A-6759-573-A	MOTOR BLOCK ASSY, TRAY (including TM-119 BOARD)	

5-1-3. MAIN BOARDS ASSEMBLY

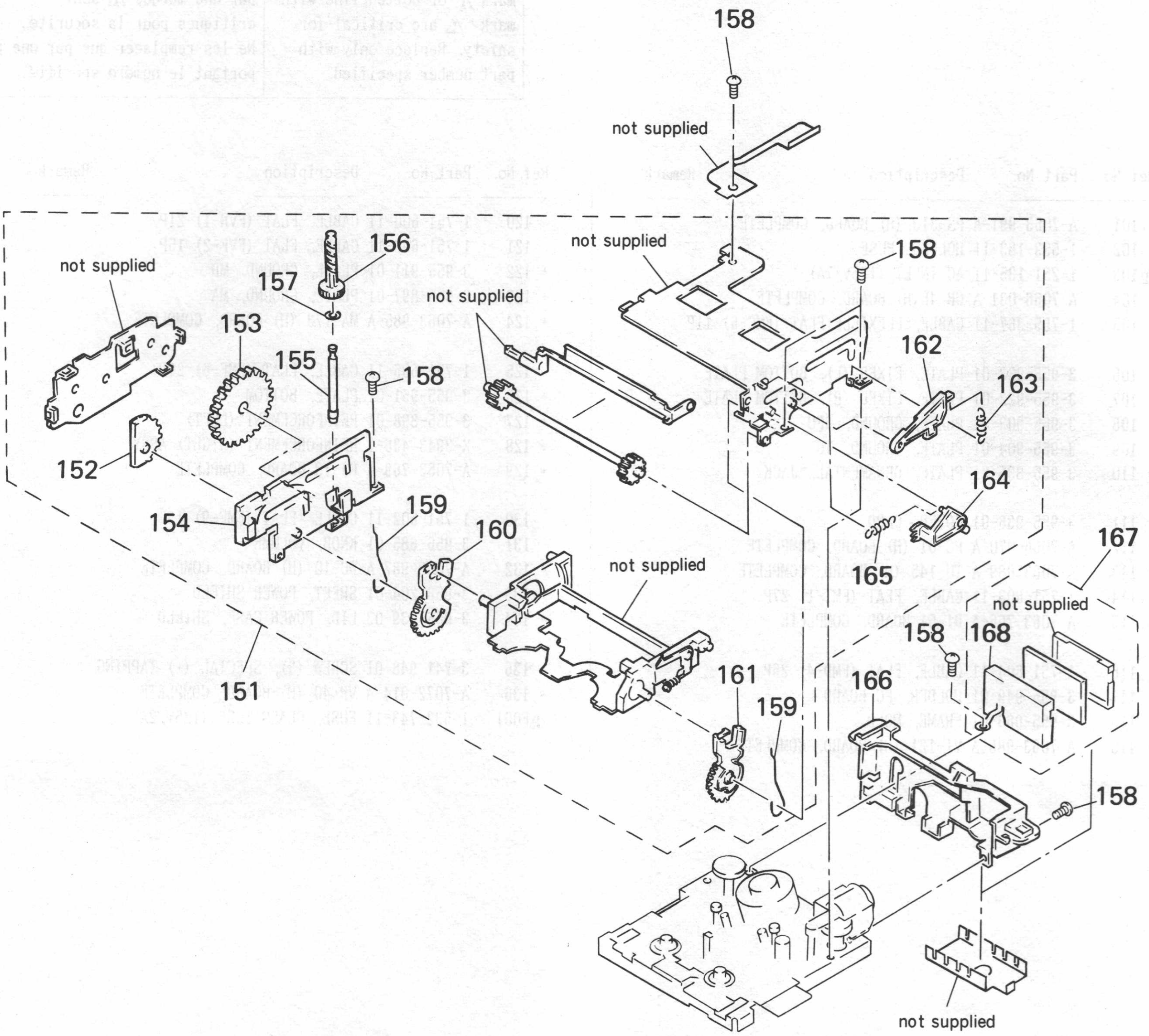


134
Ⓒ
102
101
103
F001
not supplied
#1
#9
#9
#1
not supplied
#6
133
Ⓒ
#1
113
#1
110
115
not supplied
114
Ⓐ
106
108
Ⓐ
#1
116
#1
132
not supplied
Ⓑ
109
120
121
118
107
112
not supplied
117
122
123
135
119
#1
104
125
111
not supplied
not supplied
136
126
105
124
127
not supplied
128
#1
#1
129
130
#9
131
#1
#1

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
* 101	A-7063-991-A	PS-313 (H) BOARD, COMPLETE	
102	1-533-183-11	HOLDER, FUSE	
⚠103	1-251-135-11	AC INLET (125V/7A)	
* 104	A-7066-031-A	CB-46(H) BOARD, COMPLETE	
105	1-765-367-11	CABLE, FLEXIBLE FLAT (FMC-6) 11P	
* 106	3-955-923-01	PLATE, FIXED (L), BOTTOM PLATE	
* 107	3-955-922-01	PLATE, FIXED (R), BOTTOM PLATE	
* 108	3-955-903-01	PLATE, GROUND, RFU	
* 109	3-955-904-01	PLATE, GROUND, TU	
* 110	3-955-835-21	PLATE, ORNAMENTAL, JACK	
* 111	3-955-936-01	COVER, CARD	
* 112	A-7066-070-A	PC-61 (H) BOARD, COMPLETE	
* 113	A-7063-989-A	TU-145 (H) BOARD, COMPLETE	
114	1-751-603-11	CABLE, FLAT (FMT-1) 27P	
* 115	A-7063-766-A	DI-51 BOARD, COMPLETE	
116	1-751-604-11	CABLE, FLAT (FMD-4) 25P	
* 117	3-955-949-01	HOLDER, PC BOARD	
* 118	3-955-960-01	FRAME, MOLD	
* 119	A-7063-986-A	VI-121 (H) BOARD, COMPLETE	
120	1-751-600-11	CABLE, FLAT (FVR-1) 21P	
121	1-751-606-11	CABLE, FLAT (FVF-2) 15P	
* 122	3-955-911-01	PLATE, GROUND, MD	
* 123	3-955-897-01	PLATE, GROUND, MA	
* 124	A-7063-985-A	MA-173 (H) BOARD, COMPLETE	
125	1-751-605-11	CABLE, FLAT (FMF-6) 21P	
* 126	3-955-951-01	PLATE, BOTTOM	
* 127	3-955-898-01	REINFORCEMENT (LEFT)	
* 128	X-3943-436-1	REINFORCEMENT (RIGHT) ASSY	
* 129	A-7063-769-A	FJ-13 BOARD, COMPLETE	
130	1-751-602-11	CABLE, FLAT (FMF-9) 13P	
131	3-956-685-01	KNOB, VOLUME	
* 132	A-7063-987-A	WC-10 (H) BOARD, COMPLETE	
* 133	3-958-204-01	SHEET, POWER SHIELD	
* 134	3-955-939-03	LID, POWER CASE, SHIELD	
135	3-741-948-01	SCREW (3), SPECIAL (+) TAPPING	
* 136	A-7072-014-A	VP-40 (H) BOARD, COMPLETE	
⚠F001	1-532-743-11	FUSE, GLASS TUBE (125V/2A)	

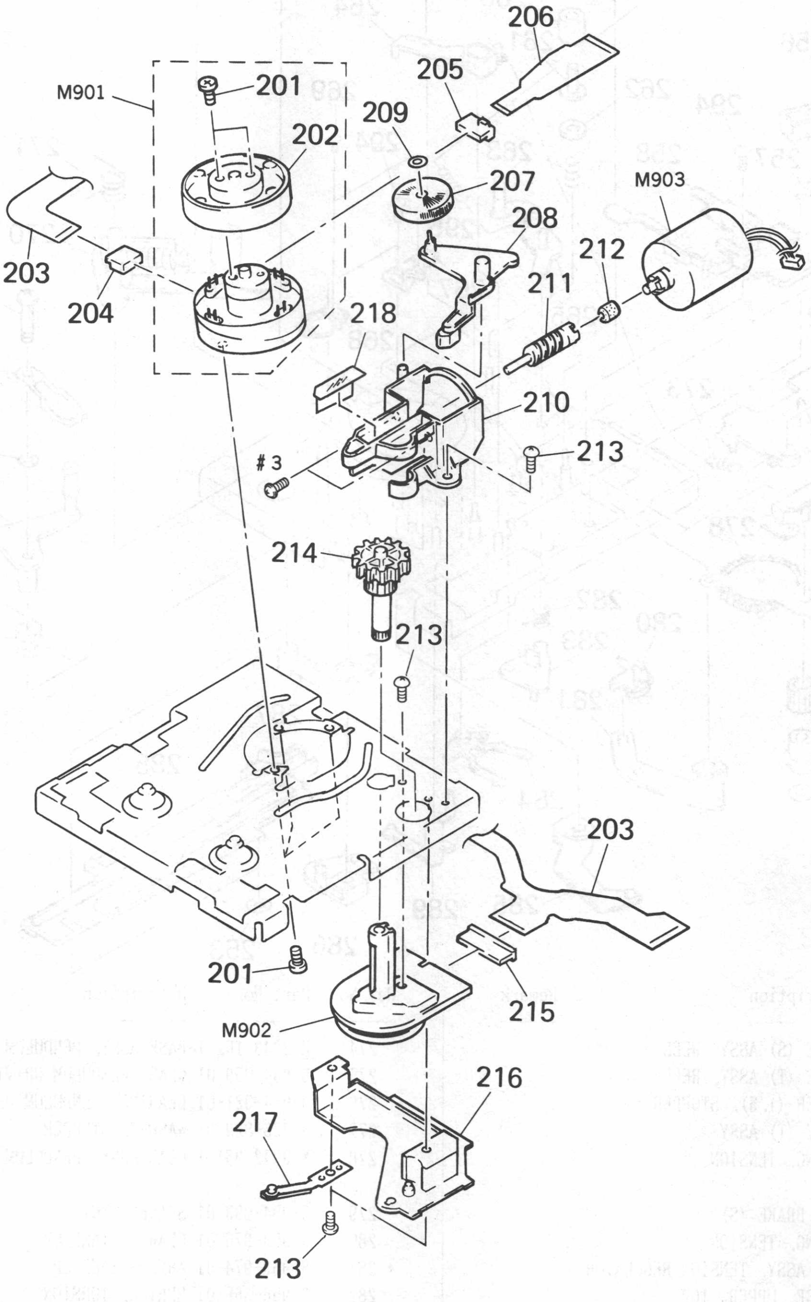
5-1-4. CASSETTE COMPARTMENT ASSEMBLY


158
not supplied
156
not supplied
157
not supplied
158
153
155
158
162
163
152
164
159
154
160
167
165
not supplied
not supplied
158
168
151
161
166
159
158
not supplied

Ref. No.	Part No.	Description	Remark
151	A-7091-941-A	FL BLOCK ASSY	
152	3-954-020-01	GEAR, DRIVING	
153	3-954-019-01	WHEEL, FL WORM	
* 154	3-954-032-01	PLATE (S), SIDE	
* 155	3-954-029-01	SHAFT, FL WORM GEAR	
156	3-954-028-01	GEAR, FL WORM	
157	3-738-212-11	RETAINER, THRUST, REEL TABLE	
158	3-732-817-01	SCREW (2X4.5), TAPPING	
159	3-954-042-01	SPRING, PRESS	

Ref. No.	Part No.	Description	Remark
160	3-954-034-01	ARM (S), DRIVING	
161	3-954-033-01	ARM (T), DRIVING	
* 162	3-954-040-01	ARM, CASSETTE IN SWICH	
163	3-954-043-01	SPRING, TENSION	
* 164	3-954-041-01	ARM, DOOR SWITCHING	
165	3-954-044-01	SPRING, TENSION	
* 166	3-955-623-01	FRAME, RP	
* 167	A-7063-758-A	RP-165 BOARD, COMPLETE	
* 168	3-955-621-01	CASE (MAIN), SHIELD, RP	

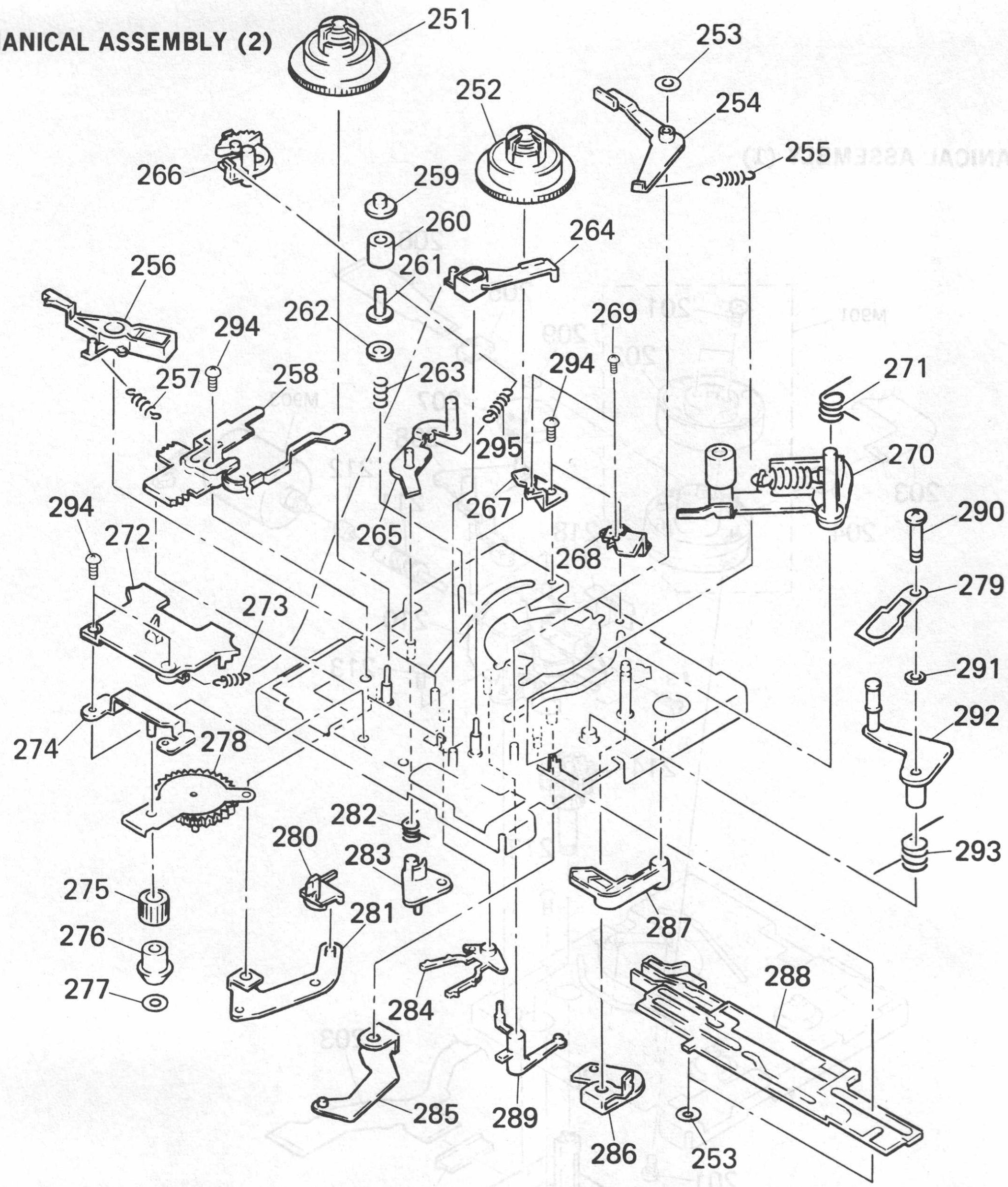
5-1-5. MECHANICAL ASSEMBLY (1)


206
205
M901
201
209
202
207
208
M903
212
203
211
204
218
210
213
#3
214
213
203
201
215
M902
216
217
213

Ref. No.	Part No.	Description	Remark
201	3-686-493-01	SCREW (M2X5), P1	
202	A-7049-481-A	DRUM ASSY, ROTARY (UPPER) (DGR-87-R)	
203	1-649-836-11	FP-695 FLEXIBLE BOARD	
204	1-691-254-13	CONNECTOR, TRANSLATION 10P	
205	1-691-471-11	CONNECTOR, TRANSLATION 11P	
206	1-649-565-11	FP-696 FLEXIBLE BOARD	
207	X-3943-192-1	ROLLER ASSY, HC	
208	X-3942-947-1	ARM ASSY, HC	
209	3-321-393-01	WASHER, STOPPER	
210	3-954-024-01	HOLDER, MOTOR	
211	3-733-395-01	GEAR (CAM), WORM	

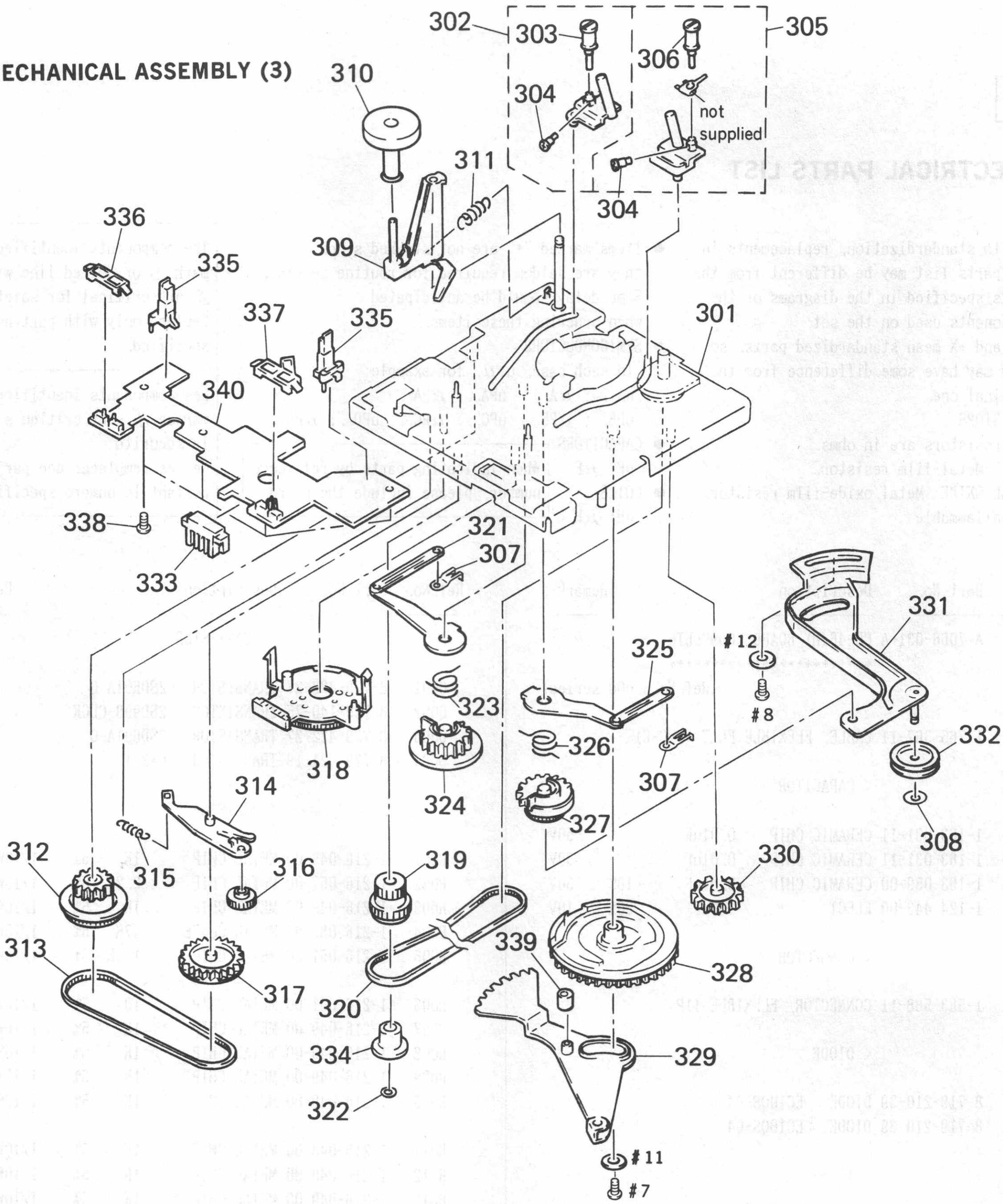
Ref. No.	Part No.	Description	Remark
212	3-696-388-01	RUBBER, JOINT	
213	3-732-817-01	SCREW (2X4.5), TAPPING	
214	3-954-023-01	WHEEL, CAM WORM	
215	1-764-137-11	CONNECTOR, TRANSLATION 15P	
* 216	3-954-049-01	RETAINER, WORM WHEET	
217	X-3942-960-1	GROUND ASSY, SHAFT	
* 218	3-958-047-01	COVER, MOTOR HOLDER	
M901	A-7048-681-A	DRUM ASSY (DGH-0A7A-R)	
M902	8-835-499-01	MOTOR, DC SCE-0501A (CAPSTAN)	
M903	X-3942-946-1	MOTOR ASSY, CAM	

5-1-6. MECHANICAL ASSEMBLY (2)


251
253
252
254
266
259
255
260
264
256
261
262
294
269
257
258
263
294
271
295
270
267
294
272
265
290
268
273
279
291
274
278
292
282
280
283
293
275
281
287
276
288
277
284
285
289
286
253

Ref. No.	Part No.	Description	Remark
251	X-3942-954-1	TABLE (S) ASSY, REEL	
252	X-3942-953-1	TABLE (T) ASSY, REEL	
253	3-669-465-00	WASHER (1.5), STOPPER	
254	X-3943-161-1	BRAKE (T) ASSY	
255	3-953-978-01	SPRING, TENSION	
256	3-954-071-01	ARM, BRAKE (S)	
257	3-954-085-01	SPRING, TENSION	
258	X-3942-956-1	BAND ASSY, TENSION REGULATOR	
259	3-726-884-01	FLANGE, UPPER, TG2	
260	3-726-883-31	ROLLER, TG2	
261	3-726-885-01	SLEEVE, TG2	
262	3-726-882-02	FLANGE, LOWER, TG2	
263	3-954-001-01	SPRING, COMPRESSION	
264	X-3943-111-1	BRAKE (T) ASSY, SOFT	
265	X-3942-955-1	TENSION REGULATOR ASSY	
266	3-954-103-01	ARM, TENSION ADJUSTMENT	
267	3-954-090-01	CATCHER (S)	
268	3-954-091-01	CATCHER (T)	
269	3-954-285-01	SCREW (M1.4X0.2)	
270	X-3942-945-1	ARM ASSY, PINCH	
271	3-954-105-01	SPRING (PINCH DRIVING)	
* 272	3-954-063-01	PLATE, RELEASE, REEL LOCK	
273	3-955-142-01	SPRING, TENSION	
274	X-3943-162-1	BASE ASSY, PENDULUM	
275	3-954-059-01	GEAR, PENDULUM DRIVING	
276	3-954-321-01	BEARING, PENDULUM DRIVING	
277	3-726-829-01	WASHER, STOPPER	
278	X-3942-951-1	GEAR ASSY, PENDULUM	
279	3-954-093-01	SPACER, TG7	
280	3-953-975-01	CLAW, S TAKE-UP	
* 281	3-953-974-01	ARM, S TAKE-UP	
282	3-956-366-01	SPRING, TORSION	
283	3-954-100-01	ARM, TENSION REGULATOR SUB	
284	3-953-973-01	ARM, PENDULUM COMPULSION	
* 285	3-954-007-01	LEVER, SLIDE PLATE DRIVING	
* 286	3-954-009-01	LEVER, PINCH DRIVING	
287	3-954-016-01	LEVER, TG7 DRIVING	
288	3-953-972-01	PLATE, SLIDE	
289	3-954-072-01	LEVER, BRAKE (S) DRIVING	
290	3-954-096-01	SCREW, TG7 HEIGHT ADJUSTMENT	
291	3-738-212-11	RETAINER, THRUST, REEL TABLE	
292	X-3942-958-1	ARM ASSY, TG7	
293	3-954-003-01	SPRING (TG7), TORSION	
294	3-732-817-01	SCREW (2X4.5), TAPPING	
295	3-954-074-01	SPRING, TENSION	

5-1-7. MECHANICAL ASSEMBLY (3)


302
303
305
306
304
not supplied
304
310
311
309
336
335
337
335
340
301
338
333
321
307
331
#12
#8
325
323
326
307
332
308
318
324
327
314
312
315
316
319
330
313
317
339
328
320
334
329
322
#11
#7

Ref. No.	Part No.	Description	Remark
* 301	X-3942-952-1	CHASSIS ASSY, MECHANICAL	
302	A-7040-338-A	COASTER (S) BLOCK ASSY	
303	X-3941-755-1	ROLLER ASSY (2), TG3	
304	3-947-504-01	SCREW (M1.2X2)	
305	A-7040-339-A	COASTER (T) BLOCK ASSY	
306	X-3941-756-1	ROLLER ASSY (2), TG6	
307	3-956-649-01	SPRING, LEAF, COASTER	
308	3-726-829-01	WASHER, STOPPER	
309	X-3943-015-1	BASE ASSY, ROLLER	
310	3-954-282-01	ROLLER (M)	
311	3-954-284-01	SPRING, TENSION	
312	3-953-983-01	GEAR, FL PULLEY	
313	3-954-079-01	BELT (FL), TIMING	
314	3-953-979-01	ARM, FL SELECTION	
315	3-953-982-01	SPRING, TENSION	
316	3-953-980-01	GEAR, FL SELECTION	
317	3-953-981-01	GEAR (DRIVING), FL PULLEY	
318	1-692-498-11	SWITCH, ROTARY	
319	3-954-061-01	GEAR, REEL RELAY	
320	3-953-986-01	BELT, TIMING	

Ref. No.	Part No.	Description	Remark
321	X-3942-949-1	ARM (S) ASSY, LOADING	
322	3-726-829-01	WASHER, STOPPER	
323	3-953-998-01	SPRING (S), TORSION	
324	3-953-991-01	GEAR (S), LOADING	
325	X-3942-948-1	ARM (T) ASSY, LOADING	
326	3-954-000-01	SPRING (T), TORSION	
327	3-953-992-01	GEAR (T), LOADING	
328	3-954-050-01	CAM, MAIN	
* 329	3-954-014-01	LEVER, LOADING DRIVING	
330	3-954-015-01	GEAR, CAM RELAY	
331	X-3942-962-1	BASE ASSY, PULLEY	
332	X-3943-016-1	PULLEY ASSY, BELT	
333	1-750-620-11	CONNECTOR (MM8 MD)	
334	3-954-102-02	FLANGE, REEL RELAY	
335	3-953-985-01	HOLDER, ST SENSOR	
336	3-954-638-01	HOLDER (S), PUSH SWITCH	
337	3-954-639-01	HOLDER (T), PUSH SWITCH	
338	3-732-817-01	SCREW (2X4.5), TAPPING	
339	3-954-323-01	ROLLER, LOADING	
* 340	1-648-300-11	MD-59 BOARD	

5-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
*	A-7066-031-A	CB-46(H) BOARD, COMPLETE	
		************************	
		(Ref.No 5,000 series)	
	1-765-367-11	CABLE, FLEXIBLE FLAT (FMC-6)	
		< CAPACITOR >	
C001	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C002	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C003	1-163-059-00	CERAMIC CHIP 0.01uF 10%	50V
C006	1-124-443-00	ELECT 100uF 20%	10V
		< CONNECTOR >	
CN001	1-563-588-11	CONNECTOR, FLEXIBLE 11P	
		< DIODE >	
D002	8-719-210-39	DIODE EC10QS-04	
D003	8-719-210-39	DIODE EC10QS-04	
		< IC >	
IC001	8-752-850-92	IC CXP50116-440Q	
		< JUMPER RESISTOR >	
JR001	1-216-295-00	METAL CHIP 0 5%	1/10W
JR002	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR003	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR004	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR005	1-216-295-00	METAL CHIP 0 5%	1/10W
JR006	1-216-296-91	METAL GLAZE 0 5%	1/8W
		< COIL >	
L001	1-410-509-11	INDUCTOR 10uH	
L002	1-410-509-11	INDUCTOR 10uH	
		< TRANSISTOR >	
Q001	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q002	8-729-140-75	TRANSISTOR 2SD999-CLCK	
Q003	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q004	8-729-421-19	TRANSISTOR UN2213	
		< RESISTOR >	
R001	1-216-049-00	METAL CHIP 1K 5%	1/10W
R002	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R003	1-216-049-00	METAL CHIP 1K 5%	1/10W
R004	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R005	1-216-051-00	METAL CHIP 1.2K 5%	1/10W
R006	1-216-001-00	METAL CHIP 10 5%	1/10W
R007	1-216-049-00	METAL CHIP 1K 5%	1/10W
R008	1-216-049-00	METAL CHIP 1K 5%	1/10W
R009	1-216-049-00	METAL CHIP 1K 5%	1/10W
R010	1-216-049-00	METAL CHIP 1K 5%	1/10W
R011	1-216-049-00	METAL CHIP 1K 5%	1/10W
R012	1-216-049-00	METAL CHIP 1K 5%	1/10W
R013	1-216-049-00	METAL CHIP 1K 5%	1/10W
R014	1-216-049-00	METAL CHIP 1K 5%	1/10W
R015	1-216-073-00	METAL CHIP 10K 5%	1/10W
		< VIBRATOR >	
X001	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)	
		**	

Ref. No.	Part No.	Description	Remark
*		CONTROL SWITCH BLOCK (Supplied with HOUSING ASSY) (Ref. No 7,000 series)	
		< CONNECTOR >	
CN401	1-568-867-11	FPC CONNECTOR 25P	
		< DIODE >	
D420	8-719-037-97	LED CL-190R-CD (TIME CORD WRITE)	
D421	8-719-037-97	LED CL-190R-CD (AUDIO DUB)	
D423	8-719-037-97	LED CL-190R-CD (HIFI)	
D424	8-719-047-66	LED CL-190D-CD (TBC)	
D425	8-719-047-66	LED CL-190D-CD (DNR)	
D426	8-719-037-96	LED CL-190G-CD (PCM)	
D427	8-719-037-97	LED CL-190R-CD (EDIT STBY)	
D428	8-719-037-96	LED CL-190G-CD (LANC REMOTE)	
D429	8-719-037-96	LED CL-190G-CD (PLAY)	
D430	8-719-037-96	LED CL-190G-CD (PLAY)	
D431	8-719-037-96	LED CL-190G-CD (STOP)	
D432	8-719-037-96	LED CL-190G-CD (STOP)	
		< JUMPER RESISTOR >	
JR401	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR402	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR403	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR404	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR405	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR406	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR407	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR408	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR409	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR410	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR411	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR412	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR413	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR414	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR415	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR416	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR417	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR418	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR419	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR420	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR421	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR422	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR423	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR424	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR425	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR426	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR427	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR428	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR429	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR430	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR431	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR432	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR433	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR434	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR435	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR436	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR437	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR438	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR439	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR440	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR441	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR442	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR443	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR444	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR445	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR446	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR447	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR448	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR449	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR450	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR451	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR452	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR453	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR454	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR455	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR456	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR457	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR458	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR459	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR460	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR461	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR462	1-216-296-11	METAL CHIP 0 5% 1/8W	A
JR463	1-216-296-11	METAL CHIP 0 5% 1/8W	A
		< TRANSISTOR >	
Q401	8-729-421-19	TRANSISTOR UN2213	A
Q402	8-729-421-19	TRANSISTOR UN2213	A
Q403	8-729-421-19	TRANSISTOR UN2213	A
Q404	8-729-421-19	TRANSISTOR UN2213	A
Q405	8-729-421-19	TRANSISTOR UN2213	A
Q406	8-729-421-19	TRANSISTOR UN2213	A
Q407	8-729-421-19	TRANSISTOR UN2213	A
Q408	8-729-421-19	TRANSISTOR UN2213	A

CONTROL SWITCH BLOCK

Ref. No.	Part No.	Description	Remark
		< RESISTOR >	
R401	1-216-182-11	METAL CHIP 220	1/8W
R402	1-216-033-11	METAL CHIP 220	1/10W
R403	1-216-033-11	METAL CHIP 220	1/10W
R404	1-216-037-11	METAL CHIP 330	1/10W
R405	1-216-182-11	METAL CHIP 220	1/8W
R406	1-216-033-11	METAL CHIP 220	1/10W
R407	1-216-033-11	METAL CHIP 220	1/10W
R408	1-216-041-11	METAL CHIP 470	1/10W
R409	1-216-186-11	METAL CHIP 330	1/8W
R410	1-216-037-11	METAL CHIP 330	1/10W
R411	1-216-037-11	METAL CHIP 330	1/10W
R412	1-216-190-11	METAL CHIP 470	1/8W
R413	1-216-041-00	METAL CHIP 470	1/10W
R414	1-216-190-11	METAL CHIP 470	1/8W
R415	1-216-049-11	METAL CHIP 1K	1/10W
R416	1-216-057-11	METAL CHIP 2. 2K	1/10W
R417	1-216-049-11	METAL CHIP 1K	1/10W
R418	1-216-049-11	METAL CHIP 1K	1/10W
R421	1-216-206-11	METAL CHIP 2. 2K	1/8W
R421	1-216-206-11	METAL CHIP 2. 2K	1/8W
R422	1-216-206-11	METAL CHIP 2. 2K	1/8W
R423	1-216-033-11	METAL CHIP 220	1/10W
R424	1-216-033-11	METAL CHIP 220	1/10W
R425	1-216-033-11	METAL CHIP 220	1/10W
R426	1-216-182-11	METAL CHIP 220	1/8W
R427	1-216-095-11	METAL CHIP 82K	1/10W
R428	1-216-049-11	METAL CHIP 1K	1/10W
R429	1-216-033-11	METAL CHIP 220	1/10W
R430	1-216-033-11	METAL CHIP 220	1/10W
R431	1-216-033-11	METAL CHIP 220	1/10W
R432	1-216-033-11	METAL CHIP 220	1/10W
R433	1-216-037-11	METAL CHIP 330	1/10W
R434	1-216-037-11	METAL CHIP 330	1/10W
R435	1-216-037-11	METAL CHIP 330	1/10W
R436	1-216-037-11	METAL CHIP 330	1/10W
R437	1-216-041-11	METAL CHIP 470	1/10W
R438	1-216-041-11	METAL CHIP 470	1/10W
R439	1-216-190-11	METAL CHIP 470	1/8W
R440	1-216-041-11	METAL CHIP 470	1/10W
R441	1-216-095-11	METAL CHIP 82K	1/10W
R442	1-216-075-00	METAL CHIP 12K	1/10W
R442	1-216-077-11	METAL CHIP 15K	1/10W
R443	1-216-048-11	METAL CHIP 910	1/10W
R443	1-216-061-11	METAL CHIP 3. 3K	1/10W
R444	1-216-198-11	METAL CHIP 1K	1/8W
R445	1-216-049-11	METAL CHIP 1K	1/10W
R446	1-216-198-11	METAL CHIP 1K	1/8W
R447	1-216-049-11	METAL CHIP 1K	1/10W
R448	1-216-049-11	METAL CHIP 1K	1/10W
R449	1-216-182-11	METAL CHIP 220	1/8W
R450	1-216-057-11	METAL CHIP 2. 2K	1/10W
R452	1-216-057-11	METAL CHIP 2. 2K	1/10W
R453	1-216-031-11	METAL CHIP 180	1/10W
R454	1-216-031-11	METAL CHIP 180	1/10W
R456	1-216-031-11	METAL CHIP 180	1/10W
R457	1-216-031-11	METAL CHIP 180	1/10W
R458	1-216-031-11	METAL CHIP 180	1/10W
R459	1-216-031-11	METAL CHIP 180	1/10W
R460	1-216-031-11	METAL CHIP 180	1/10W
R461	1-216-031-11	METAL CHIP 180	1/10W
R465	1-216-296-11	METAL CHIP 0	1/8W
R466	1-216-296-11	METAL CHIP 0	1/8W
R467	1-216-031-11	METAL CHIP 180	1/8W
R470	1-216-296-11	METAL CHIP 0	1/8W
R471	1-216-031-11	METAL CHIP 180	1/10W
R472	1-216-031-11	METAL CHIP 180	1/10W
R473	1-216-031-11	METAL CHIP 180	1/10W
R474	1-216-031-11	METAL CHIP 180	1/10W
		< VARIABLE RESISTOR >	
RV401	1-223-521-11	RES, ADJ, CARBON 100K (PCM/AFM/STD AUDIO LEVEL)	
RV402	1-223-521-11	RES, ADJ, CARBON 100K (PCM REC LEVEL)	
RV403	1-223-521-11	RES, ADJ, CARBON 100K (PCM REC BALANCE)	
		< SWITCH >	
S401	1-692-925-11	SWITCH, TACTIL (LANC REMOTE)	
S402	1-692-925-11	SWITCH, TACTIL (TIMER REC)	
S403	1-692-925-11	SWITCH, TACTIL (■ STOP)	
S404	1-692-925-11	SWITCH, TACTIL (PAUSE)	
S405	1-692-925-11	SWITCH, TACTIL (EDIT STBY)	
S406	1-692-925-11	SWITCH, TACTIL (QUICK TIMER)	
S407	1-692-925-11	SWITCH, TACTIL (● REC)	
S408	1-692-925-11	SWITCH, TACTIL (HI-SPEED REWIND)	
S409	1-692-925-11	SWITCH, TACTIL (SYNCHRO EDIT/START)	
S410	1-692-925-11	SWITCH, TACTIL (TIMER CLEAR)	
S411	1-692-925-11	SWITCH, TACTIL (▷ PLAY)	
S412	1-692-925-11	SWITCH, TACTIL (INPUT SELECT)	
S413	1-692-925-11	SWITCH, TACTIL (ASSEMBLE)	
S415	1-692-925-11	SWITCH, TACTIL (CHANNEL -)	
S416	1-692-925-11	SWITCH, TACTIL (MARK)	
S417	1-692-926-11	SWITCH, SLIDE (PCM/MIX/STD)	
S418	1-692-925-11	SWITCH, TACTIL (CHANNEL +)	
S419	1-692-925-11	SWITCH, TACTIL (EDIT MONITOR)	
S423	1-692-925-11	SWITCH, TACTIL (BACK)	
S425	1-692-925-11	SWITCH, TACTIL (MENU)	

Ref. No.	Part No.	Description	Remark
S426	1-692-925-11	SWITCH, TACTIL (EXECUTE)	
S428	1-692-925-11	SWITCH, TACTIL (COUNTOR SELECT)	
S429	1-692-925-11	SWITCH, TACTIL (TV/VTR)	
S430	1-692-925-11	SWITCH, TACTIL (◀)	
S432	1-692-925-11	SWITCH, TACTIL (FF ▶▶)	
S433	1-692-925-11	SWITCH, TACTIL (SP/LP)	
S434	1-692-925-11	SWITCH, TACTIL (▶)	
S436	1-692-925-11	SWITCH, TACTIL (REW ◀◀)	
S437	1-692-925-11	SWITCH, TACTIL (INDEX MARK)	
S438	1-692-925-11	SWITCH, TACTIL (▲)	
S439	1-692-925-11	SWITCH, TACTIL (DNR)	
S440	1-692-925-11	SWITCH, TACTIL (AUDIO DUB)	
S441	1-692-925-11	SWITCH, TACTIL (INDEX ERASE)	
S442	1-692-925-11	SWITCH, TACTIL (▼)	
S443	1-692-925-11	SWITCH, TACTIL (COUNTOR RESET)	
S444	1-692-925-11	SWITCH, TACTIL (TIME CODE WRITE)	
S445	1-692-925-11	SWITCH, TACTIL (INDEX SEARCH ⏮)	
S447	1-692-925-11	SWITCH, TACTIL (VISUAL SCAN)	
S449	1-692-925-11	SWITCH, TACTIL (INDEX SEARCH ⏭)	

< SWITCH, JOG/SHUTTLE >

Ref. No.	Part No.	Description	Remark
S450	1-692-722-11	SWITCH, JOG/SHUTTLE (◁REVERSE/FORWARD▷)	

****

* A-7063-766-A DI-51 BOARD, COMPLETE

****

(Ref.No 2,000 series)

1-751-604-11 CABLE, FLAT (FMD-4)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C108	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C109	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C114	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C115	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C116	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C117	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C118	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C120	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C121	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C122	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C150	1-124-779-00	ELECT CHIP 10uF 20%	16V
C152	1-126-205-11	ELECT CHIP 47uF 20%	6.3V
C153	1-124-778-00	ELECT CHIP 22uF 20%	6.3V
C155	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C156	1-163-129-00	CERAMIC CHIP 330PF 5%	50V
C157	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C158	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C159	1-126-205-11	ELECT CHIP 47uF 20%	6.3V
C200	1-124-778-00	ELECT CHIP 22uF 20%	6.3V
C201	1-163-101-00	CERAMIC CHIP 22PF 5%	50V
C202	1-163-101-00	CERAMIC CHIP 22PF 5%	50V
C204	1-124-778-00	ELECT CHIP 22uF 20%	6.3V
C205	1-126-205-11	ELECT CHIP 47uF 20%	6.3V
C206	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C207	1-126-193-11	ELECT 1uF 20%	50V
C208	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C209	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C210	1-163-109-00	CERAMIC CHIP 47PF 5%	50V
C213	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C214	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C215	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C216	1-124-778-00	ELECT CHIP 22uF 20%	6.3V
C218	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C219	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C250	1-163-101-00	CERAMIC CHIP 22PF 5%	50V
C251	1-163-101-00	CERAMIC CHIP 22PF 5%	50V
C252	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C253	1-126-205-11	ELECT CHIP 47uF 20%	6.3V
C254	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C255	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C256	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C257	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C258	1-163-109-00	CERAMIC CHIP 47PF 5%	50V
C259	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C262	1-124-778-00	ELECT CHIP 22uF 20%	6.3V
C263	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C265	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C266	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C300	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C301	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C302	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C303	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C304	1-126-205-11	ELECT CHIP 47uF 20%	6.3V
C305	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C306	1-126-193-11	ELECT 1uF 20%	50V
C307	1-124-499-11	ELECT, NONPOLAR 1uF 20%	50V
C308	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C309	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C311	1-124-499-11	ELECT, NONPOLAR 1uF 20%	50V
C312	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C315	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C316	1-163-108-00	CERAMIC CHIP 43PF 5%	50V
C317	1-163-108-00	CERAMIC CHIP 43PF 5%	50V
C318	1-163-113-00	CERAMIC CHIP 68PF 5%	50V
C319	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C322	1-163-235-11	CERAMIC CHIP 22PF 5%	50V
C400	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C401	1-126-205-11	ELECT CHIP 47uF 20%	6.3V

Ref. No.	Part No.	Description	Remark
C402	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C403	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C404	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C450	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C451	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C452	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C453	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C500	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C501	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C502	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C503	1-126-205-11	ELECT CHIP 47uF	20% 6.3V
C504	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C505	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C507	1-163-239-11	CERAMIC CHIP 33PF	5% 50V
C508	1-163-222-11	CERAMIC CHIP 5PF	0.25PF 50V
C570	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C601	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C602	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C603	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C604	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C605	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C607	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C608	1-163-237-11	CERAMIC CHIP 27PF	5% 50V
C609	1-163-237-11	CERAMIC CHIP 27PF	5% 50V
C611	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C700	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C701	1-124-779-00	ELECT CHIP 10uF	20% 16V
C702	1-163-110-00	CERAMIC CHIP 51PF	5% 50V
C703	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C704	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C705	1-126-205-11	ELECT CHIP 47uF	20% 6.3V
C706	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C708	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C709	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C710	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C711	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C712	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C715	1-163-107-00	CERAMIC CHIP 39PF	5% 50V
C750	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C751	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C753	1-163-107-00	CERAMIC CHIP 39PF	5% 50V
C754	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C755	1-126-205-11	ELECT CHIP 47uF	20% 6.3V
C756	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C757	1-163-121-00	CERAMIC CHIP 150PF	5% 50V
C758	1-163-121-00	CERAMIC CHIP 150PF	5% 50V
C759	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C760	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C761	1-163-031-11	CERAMIC CHIP 0.01uF	50V

Ref. No.	Part No.	Description	Remark
C762	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C763	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C769	1-163-107-00	CERAMIC CHIP 39PF	5% 50V
C800	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C801	1-126-205-11	ELECT CHIP 47uF	20% 6.3V
C802	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C803	1-126-193-11	ELECT 1uF	20% 50V
C804	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C805	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C806	1-164-182-11	CERAMIC CHIP 0.0033uF	10% 50V
C807	1-126-602-11	ELECT CHIP 3.3uF	20% 50V
C808	1-126-193-11	ELECT 1uF	20% 50V
C809	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C810	1-163-098-00	CERAMIC CHIP 16PF	5% 50V
C812	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C813	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C814	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C815	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C816	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C817	1-163-127-00	CERAMIC CHIP 270PF	5% 50V
C818	1-163-139-00	CERAMIC CHIP 820PF	5% 50V
C819	1-163-038-00	CERAMIC CHIP 0.1uF	25V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN100	1-691-084-21	HOUSING, CONNECTOR 25P	

< VARIABLE CAPACITOR >

Ref. No.	Part No.	Description	Remark
CV300	1-141-422-11	CAP, ADJ	
CV500	1-141-422-11	CAP, ADJ	
CV800	1-141-423-61	CAP, ADJ	

< DIODE >

Ref. No.	Part No.	Description	Remark
D150	8-719-404-46	DIODE MA110	
D300	8-719-949-46	DIODE 1T32	
D301	8-719-404-46	DIODE MA110	
D500	8-719-940-45	DIODE DWA010	
D800	8-713-300-88	DIODE 1T33C-01	
D801	8-719-914-43	DIODE DAN202K	
D802	8-719-404-46	DIODE MA110	

< FERRITE BEAD >

Ref. No.	Part No.	Description	Remark
FB100	1-543-256-11	BEAD, FERRITE	
FB101	1-543-256-11	BEAD, FERRITE	
FB103	1-543-256-11	BEAD, FERRITE	
FB104	1-543-256-11	BEAD, FERRITE	
FB401	1-412-390-21	INDUCTOR CHIP 0uH	
FB402	1-412-390-21	INDUCTOR CHIP 0uH	
FB403	1-412-390-21	INDUCTOR CHIP 0uH	

Ref.No.	Part No.	Description	Remark
FB404	1-412-390-21	INDUCTOR CHIP 0uH	
FB405	1-412-390-21	INDUCTOR CHIP 0uH	
FB406	1-412-390-21	INDUCTOR CHIP 0uH	
FB407	1-412-390-21	INDUCTOR CHIP 0uH	
FB408	1-412-390-21	INDUCTOR CHIP 0uH	
FB409	1-412-390-21	INDUCTOR CHIP 0uH	
FB451	1-412-390-21	INDUCTOR CHIP 0uH	
FB452	1-412-390-21	INDUCTOR CHIP 0uH	
FB453	1-412-390-21	INDUCTOR CHIP 0uH	
FB454	1-412-390-21	INDUCTOR CHIP 0uH	
FB501	1-412-390-21	INDUCTOR CHIP 0uH	
FB502	1-412-390-21	INDUCTOR CHIP 0uH	
FB503	1-412-390-21	INDUCTOR CHIP 0uH	
FB801	1-412-390-21	INDUCTOR CHIP 0uH	
		< FILTER >	
FL100	1-421-927-21	FILTER, NOISE	
		< IC >	
IC100	8-759-157-22	IC PQ05TZ1U	
IC150	8-759-011-65	IC MC74HC4053F	
IC200	8-752-334-55	IC CXD1175AM	
IC250	8-752-334-55	IC CXD1175AM	
IC300	8-759-987-17	IC CXD1226Q	
IC400	8-752-340-52	IC CXK48324Q	
IC450	8-752-340-75	IC CXK1206AM	
IC500	8-759-046-43	IC CXD2108AQ	
IC600	8-759-987-18	IC CXD1227Q	
IC700	8-752-032-96	IC CXA1106M	
IC750	8-752-032-96	IC CXA1106M	
IC800	8-759-987-20	IC CXD1229Q	
		< COIL >	
L100	1-412-062-11	INDUCTOR CHIP 47uH	
L101	1-412-062-11	INDUCTOR CHIP 47uH	
L200	1-410-388-31	INDUCTOR CHIP 39uH	
L201	1-410-389-31	INDUCTOR CHIP 47uH	
L250	1-410-388-31	INDUCTOR CHIP 39uH	
L251	1-410-389-31	INDUCTOR CHIP 47uH	
L300	1-412-062-11	INDUCTOR CHIP 47uH	
L301	1-410-374-11	INDUCTOR CHIP 2.7uH	
L400	1-410-389-31	INDUCTOR CHIP 47uH	
L450	1-410-389-31	INDUCTOR CHIP 47uH	
L500	1-412-062-11	INDUCTOR CHIP 47uH	
L600	1-412-062-11	INDUCTOR CHIP 47uH	
L601	1-410-391-11	INDUCTOR CHIP 68uH	
L602	1-410-391-11	INDUCTOR CHIP 68uH	
L700	1-410-380-31	INDUCTOR CHIP 8.2uH	
L701	1-410-383-31	INDUCTOR CHIP 15uH	
L702	1-410-393-11	INDUCTOR CHIP 100uH	
L750	1-410-384-31	INDUCTOR CHIP 18uH	
L751	1-410-383-31	INDUCTOR CHIP 15uH	
L752	1-410-390-11	INDUCTOR CHIP 56uH	
L753	1-410-383-31	INDUCTOR CHIP 15uH	
L754	1-410-389-31	INDUCTOR CHIP 47uH	
L755	1-410-384-31	INDUCTOR CHIP 18uH	
L800	1-410-377-31	INDUCTOR CHIP 4.7uH	
L801	1-412-062-11	INDUCTOR CHIP 47uH	
L802	1-410-656-11	INDUCTOR CHIP 150uH	
		< TRANSISTOR >	
Q150	8-729-402-19	TRANSISTOR XN6501	
Q153	8-729-010-25	TRANSISTOR MSD601-RT1	
Q154	8-729-010-25	TRANSISTOR MSD601-RT1	
Q155	8-729-010-25	TRANSISTOR MSD601-RT1	
Q200	8-729-010-25	TRANSISTOR MSD601-RT1	
Q201	8-729-010-25	TRANSISTOR MSD601-RT1	
Q203	8-729-010-25	TRANSISTOR MSD601-RT1	
Q250	8-729-010-25	TRANSISTOR MSD601-RT1	
Q251	8-729-010-25	TRANSISTOR MSD601-RT1	
Q253	8-729-010-25	TRANSISTOR MSD601-RT1	
Q254	8-729-010-25	TRANSISTOR MSD601-RT1	
Q300	8-729-122-63	TRANSISTOR 2SA1226-E4	
Q301	8-729-102-08	TRANSISTOR 2SC2223-F14	
Q600	8-729-010-25	TRANSISTOR MSD601-RT1	
Q601	8-729-010-25	TRANSISTOR MSD601-RT1	
Q700	8-729-010-25	TRANSISTOR MSD601-RT1	
Q701	8-729-010-25	TRANSISTOR MSD601-RT1	
Q703	8-729-010-25	TRANSISTOR MSD601-RT1	
Q704	8-729-010-25	TRANSISTOR MSD601-RT1	
Q750	8-729-010-05	TRANSISTOR MSB709-RT1	
Q751	8-729-010-25	TRANSISTOR MSD601-RT1	
Q752	8-729-010-25	TRANSISTOR MSD601-RT1	
Q754	8-729-010-25	TRANSISTOR MSD601-RT1	
Q755	8-729-010-25	TRANSISTOR MSD601-RT1	
Q800	8-729-010-05	TRANSISTOR MSB709-RT1	
Q801	8-729-010-05	TRANSISTOR MSB709-RT1	
		< RESISTOR >	
R100	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R101	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R102	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R103	1-216-041-00	METAL CHIP 470 5% 1/10W	
R104	1-216-041-00	METAL CHIP 470 5% 1/10W	
R105	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R106	1-216-049-00	METAL CHIP 1K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R150	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R151	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R152	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R153	1-216-040-00	METAL GLAZE 430 5% 1/10W	
R154	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R155	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R156	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R157	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R158	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R159	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R160	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R161	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R162	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R163	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R164	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R165	1-216-295-00	METAL CHIP 0 5% 1/10W	
R166	1-216-295-00	METAL CHIP 0 5% 1/10W	
R167	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R168	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R169	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R172	1-216-295-00	METAL CHIP 0 5% 1/10W	
R200	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R201	1-216-037-00	METAL CHIP 330 5% 1/10W	
R203	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R204	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R205	1-216-041-00	METAL CHIP 470 5% 1/10W	
R206	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R207	1-216-025-00	METAL CHIP 100 5% 1/10W	
R208	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R209	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R211	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R212	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R213	1-216-025-00	METAL CHIP 100 5% 1/10W	
R214	1-216-295-00	METAL CHIP 0 5% 1/10W	
R215	1-216-295-00	METAL CHIP 0 5% 1/10W	
R216	1-216-019-00	METAL CHIP 56 5% 1/10W	
R217	1-216-019-00	METAL CHIP 56 5% 1/10W	
R218	1-216-019-00	METAL CHIP 56 5% 1/10W	
R219	1-216-019-00	METAL CHIP 56 5% 1/10W	
R220	1-216-019-00	METAL CHIP 56 5% 1/10W	
R221	1-216-019-00	METAL CHIP 56 5% 1/10W	
R222	1-216-019-00	METAL CHIP 56 5% 1/10W	
R223	1-216-019-00	METAL CHIP 56 5% 1/10W	
R250	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R251	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R252	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R253	1-216-039-00	METAL CHIP 390 5% 1/10W	
R254	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R255	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R257	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R258	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R259	1-216-025-00	METAL CHIP 100 5% 1/10W	
R260	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R261	1-216-295-00	METAL CHIP 0 5% 1/10W	
R262	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R263	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R264	1-216-009-00	METAL CHIP 22 5% 1/10W	
R265	1-216-019-00	METAL CHIP 56 5% 1/10W	
R266	1-216-019-00	METAL CHIP 56 5% 1/10W	
R267	1-216-019-00	METAL CHIP 56 5% 1/10W	
R268	1-216-019-00	METAL CHIP 56 5% 1/10W	
R269	1-216-019-00	METAL CHIP 56 5% 1/10W	
R270	1-216-019-00	METAL CHIP 56 5% 1/10W	
R271	1-216-019-00	METAL CHIP 56 5% 1/10W	
R272	1-216-019-00	METAL CHIP 56 5% 1/10W	
R273	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R275	1-216-295-00	METAL CHIP 0 5% 1/10W	
R300	1-216-295-00	METAL CHIP 0 5% 1/10W	
R302	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R303	1-216-295-00	METAL CHIP 0 5% 1/10W	
R305	1-216-019-00	METAL CHIP 56 5% 1/10W	
R306	1-216-019-00	METAL CHIP 56 5% 1/10W	
R307	1-216-019-00	METAL CHIP 56 5% 1/10W	
R308	1-216-019-00	METAL CHIP 56 5% 1/10W	
R309	1-216-019-00	METAL CHIP 56 5% 1/10W	
R310	1-216-019-00	METAL CHIP 56 5% 1/10W	
R311	1-216-019-00	METAL CHIP 56 5% 1/10W	
R312	1-216-019-00	METAL CHIP 56 5% 1/10W	
R313	1-216-019-00	METAL CHIP 56 5% 1/10W	
R314	1-216-019-00	METAL CHIP 56 5% 1/10W	
R315	1-216-019-00	METAL CHIP 56 5% 1/10W	
R316	1-216-019-00	METAL CHIP 56 5% 1/10W	
R317	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R318	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R319	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R320	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R321	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R322	1-216-111-00	METAL CHIP 390K 5% 1/10W	
R323	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R324	1-216-119-00	METAL CHIP 820K 5% 1/10W	
R325	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R327	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R328	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R329	1-216-295-00	METAL CHIP 0 5% 1/10W	
R330	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R331	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R332	1-216-111-00	METAL CHIP 390K 5% 1/10W	
R334	1-216-119-00	METAL CHIP 820K 5% 1/10W	

Ref. No.	Part No.	Description				Remark
R335	1-216-295-00	METAL CHIP	0	5%	1/10W	
R336	1-216-295-00	METAL CHIP	0	5%	1/10W	
R337	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R338	1-216-025-00	METAL CHIP	100	5%	1/10W	
R339	1-216-013-00	METAL CHIP	33	5%	1/10W	
R340	1-216-041-00	METAL CHIP	470	5%	1/10W	
R341	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R342	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R400	1-216-019-00	METAL CHIP	56	5%	1/10W	
R401	1-216-019-00	METAL CHIP	56	5%	1/10W	
R402	1-216-019-00	METAL CHIP	56	5%	1/10W	
R403	1-216-019-00	METAL CHIP	56	5%	1/10W	
R404	1-216-019-00	METAL CHIP	56	5%	1/10W	
R405	1-216-019-00	METAL CHIP	56	5%	1/10W	
R406	1-216-019-00	METAL CHIP	56	5%	1/10W	
R407	1-216-019-00	METAL CHIP	56	5%	1/10W	
R408	1-216-019-00	METAL CHIP	56	5%	1/10W	
R413	1-216-019-00	METAL CHIP	56	5%	1/10W	
R450	1-216-295-00	METAL CHIP	0	5%	1/10W	
R451	1-216-019-00	METAL CHIP	56	5%	1/10W	
R452	1-216-019-00	METAL CHIP	56	5%	1/10W	
R453	1-216-019-00	METAL CHIP	56	5%	1/10W	
R454	1-216-019-00	METAL CHIP	56	5%	1/10W	
R456	1-216-019-00	METAL CHIP	56	5%	1/10W	
R457	1-216-019-00	METAL CHIP	56	5%	1/10W	
R462	1-216-019-00	METAL CHIP	56	5%	1/10W	
R500	1-216-019-00	METAL CHIP	56	5%	1/10W	
R501	1-216-019-00	METAL CHIP	56	5%	1/10W	
R502	1-216-019-00	METAL CHIP	56	5%	1/10W	
R503	1-216-019-00	METAL CHIP	56	5%	1/10W	
R504	1-216-019-00	METAL CHIP	56	5%	1/10W	
R505	1-216-019-00	METAL CHIP	56	5%	1/10W	
R506	1-216-019-00	METAL CHIP	56	5%	1/10W	
R509	1-216-019-00	METAL CHIP	56	5%	1/10W	
R510	1-216-019-00	METAL CHIP	56	5%	1/10W	
R511	1-216-019-00	METAL CHIP	56	5%	1/10W	
R512	1-216-019-00	METAL CHIP	56	5%	1/10W	
R513	1-216-019-00	METAL CHIP	56	5%	1/10W	
R514	1-216-019-00	METAL CHIP	56	5%	1/10W	
R515	1-216-019-00	METAL CHIP	56	5%	1/10W	
R516	1-216-019-00	METAL CHIP	56	5%	1/10W	
R517	1-216-019-00	METAL CHIP	56	5%	1/10W	
R518	1-216-019-00	METAL CHIP	56	5%	1/10W	
R519	1-216-019-00	METAL CHIP	56	5%	1/10W	
R520	1-216-019-00	METAL CHIP	56	5%	1/10W	
R521	1-216-019-00	METAL CHIP	56	5%	1/10W	
R522	1-216-019-00	METAL CHIP	56	5%	1/10W	
R523	1-216-019-00	METAL CHIP	56	5%	1/10W	
R524	1-216-019-00	METAL CHIP	56	5%	1/10W	
R525	1-216-019-00	METAL CHIP	56	5%	1/10W	
R526	1-216-019-00	METAL CHIP	56	5%	1/10W	
R528	1-216-019-00	METAL CHIP	56	5%	1/10W	
R529	1-216-019-00	METAL CHIP	56	5%	1/10W	
R530	1-216-019-00	METAL CHIP	56	5%	1/10W	
R531	1-216-019-00	METAL CHIP	56	5%	1/10W	
R532	1-216-019-00	METAL CHIP	56	5%	1/10W	
R533	1-216-019-00	METAL CHIP	56	5%	1/10W	
R534	1-216-019-00	METAL CHIP	56	5%	1/10W	
R535	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R536	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R537	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R538	1-216-019-00	METAL CHIP	56	5%	1/10W	
R539	1-216-019-00	METAL CHIP	56	5%	1/10W	
R540	1-216-295-00	METAL CHIP	0	5%	1/10W	
R541	1-216-019-00	METAL CHIP	56	5%	1/10W	
R542	1-216-019-00	METAL CHIP	56	5%	1/10W	
R543	1-216-019-00	METAL CHIP	56	5%	1/10W	
R544	1-216-019-00	METAL CHIP	56	5%	1/10W	
R545	1-216-019-00	METAL CHIP	56	5%	1/10W	
R546	1-216-019-00	METAL CHIP	56	5%	1/10W	
R547	1-216-019-00	METAL CHIP	56	5%	1/10W	
R548	1-216-019-00	METAL CHIP	56	5%	1/10W	
R549	1-216-019-00	METAL CHIP	56	5%	1/10W	
R550	1-216-019-00	METAL CHIP	56	5%	1/10W	
R551	1-216-019-00	METAL CHIP	56	5%	1/10W	
R552	1-216-019-00	METAL CHIP	56	5%	1/10W	
R553	1-216-019-00	METAL CHIP	56	5%	1/10W	
R554	1-216-019-00	METAL CHIP	56	5%	1/10W	
R555	1-216-019-00	METAL CHIP	56	5%	1/10W	
R556	1-216-019-00	METAL CHIP	56	5%	1/10W	
R557	1-216-019-00	METAL CHIP	56	5%	1/10W	
R558	1-216-019-00	METAL CHIP	56	5%	1/10W	
R559	1-216-295-00	METAL CHIP	0	5%	1/10W	
R560	1-216-029-00	METAL CHIP	150	5%	1/10W	
R561	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R570	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R603	1-216-019-00	METAL CHIP	56	5%	1/10W	
R604	1-216-019-00	METAL CHIP	56	5%	1/10W	
R605	1-216-019-00	METAL CHIP	56	5%	1/10W	
R606	1-216-019-00	METAL CHIP	56	5%	1/10W	
R607	1-216-019-00	METAL CHIP	56	5%	1/10W	
R608	1-216-019-00	METAL CHIP	56	5%	1/10W	
R609	1-216-019-00	METAL CHIP	56	5%	1/10W	
R610	1-216-019-00	METAL CHIP	56	5%	1/10W	
R611	1-216-019-00	METAL CHIP	56	5%	1/10W	
R612	1-216-019-00	METAL CHIP	56	5%	1/10W	
R613	1-216-019-00	METAL CHIP	56	5%	1/10W	
R614	1-216-019-00	METAL CHIP	56	5%	1/10W	

Ref. No.	Part No.	Description	Remark
R615	1-216-019-00	METAL CHIP 56 5% 1/10W	
R616	1-216-019-00	METAL CHIP 56 5% 1/10W	
R617	1-216-019-00	METAL CHIP 56 5% 1/10W	
R618	1-216-019-00	METAL CHIP 56 5% 1/10W	
R620	1-216-295-00	METAL CHIP 0 5% 1/10W	
R622	1-216-019-00	METAL CHIP 56 5% 1/10W	
R623	1-216-295-00	METAL CHIP 0 5% 1/10W	
R625	1-216-037-00	METAL CHIP 330 5% 1/10W	
R626	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R627	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R628	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R630	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R631	1-216-037-00	METAL CHIP 330 5% 1/10W	
R632	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R633	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R634	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R700	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R701	1-216-025-00	METAL CHIP 100 5% 1/10W	
R702	1-216-037-00	METAL CHIP 330 5% 1/10W	
R704	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R705	1-216-041-00	METAL CHIP 470 5% 1/10W	
R706	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R707	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R708	1-216-041-00	METAL CHIP 470 5% 1/10W	
R709	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R710	1-216-035-00	METAL CHIP 270 5% 1/10W	
R711	1-216-041-00	METAL CHIP 470 5% 1/10W	
R712	1-216-025-00	METAL CHIP 100 5% 1/10W	
R713	1-216-295-00	METAL CHIP 0 5% 1/10W	
R714	1-216-295-00	METAL CHIP 0 5% 1/10W	
R715	1-216-295-00	METAL CHIP 0 5% 1/10W	
R716	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R717	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R750	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R751	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R752	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R753	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R755	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R756	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R758	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R759	1-216-041-00	METAL CHIP 470 5% 1/10W	
R760	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R761	1-216-041-00	METAL CHIP 470 5% 1/10W	
R762	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R763	1-216-025-00	METAL CHIP 100 5% 1/10W	
R764	1-216-295-00	METAL CHIP 0 5% 1/10W	
R765	1-216-295-00	METAL CHIP 0 5% 1/10W	
R766	1-216-039-00	METAL CHIP 390 5% 1/10W	
R767	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R770	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R775	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R776	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R777	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R800	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R801	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R802	1-216-019-00	METAL CHIP 56 5% 1/10W	
R803	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R804	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R805	1-216-021-00	METAL CHIP 68 5% 1/10W	
R806	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R807	1-216-117-00	METAL CHIP 680K 5% 1/10W	
R809	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R810	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R811	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R812	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R813	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R814	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R817	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R820	1-216-295-00	METAL CHIP 0 5% 1/10W	
R821	1-216-295-00	METAL CHIP 0 5% 1/10W	
R823	1-216-295-00	METAL CHIP 0 5% 1/10W	
R825	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R826	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R827	1-216-041-00	METAL CHIP 470 5% 1/10W	
R900	1-216-295-00	METAL CHIP 0 5% 1/10W	
R908	1-216-295-00	METAL CHIP 0 5% 1/10W	

< VARIABLE RESISTOR >

RV200	1-230-866-11	RES, ADJ, METAL 470	
RV700	1-230-866-11	RES, ADJ, METAL 470	

< VIBRATOR >

X300	1-527-722-00	OSCILLATOR, CRYSTAL (17.73MHz)	
X500	1-567-900-11	OSCILLATOR, CRYSTAL (14.31818MHz)	

`**************************************************************`

Ref. No.	Part No.	Description			Remark
*	A-7063-769-A	FJ-13 BOARD, COMPLETE			
		**********************			
		(Ref.No 6,000 series)			
	1-751-602-11	CABLE, FLAT (FMF-9)			

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C201	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C202	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C203	1-126-157-11	ELECT	10uF	20%	16V
C204	1-126-157-11	ELECT	10uF	20%	16V
C205	1-126-157-11	ELECT	10uF	20%	16V
C207	1-126-157-11	ELECT	10uF	20%	16V
C211	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C212	1-126-157-11	ELECT	10uF	20%	16V
C213	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C214	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C215	1-126-157-11	ELECT	10uF	20%	16V
C216	1-126-301-11	ELECT	1uF	20%	50V
C218	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C220	1-126-301-11	ELECT	1uF	20%	50V
C221	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C222	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C223	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C224	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C226	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C251	1-126-157-11	ELECT	10uF	20%	16V

< CONNECTOR >

Ref. No.	Part No.	Description			Remark
CN201	1-569-930-11	HOUSING, CONNECTOR 13P			

< DIODE >

Ref. No.	Part No.	Description			Remark
D203	8-719-420-14	DIODE	MA8082-M		
D206	8-719-420-14	DIODE	MA8082-M		

< IC >

Ref. No.	Part No.	Description			Remark
IC201	8-759-924-46	IC	BA4560F		
IC202	8-759-924-46	IC	BA4560F		

< JACK >

Ref. No.	Part No.	Description			Remark
J202	1-507-833-00	JACK (PHONES)			
J203	1-764-136-11	JACK (SMALL TYPE WITH SWITCH) (MIC)			

< JUMPER RESISTOR >

Ref. No.	Part No.	Description			Remark
JR201	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR202	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR203	1-216-295-00	METAL CHIP	0	5%	1/10W
JR204	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR206	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR207	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR208	1-216-295-00	METAL CHIP	0	5%	1/10W

< TRANSISTOR >

Ref. No.	Part No.	Description			Remark
Q201	8-729-010-25	TRANSISTOR	MSD601-RT1		
Q202	8-729-010-25	TRANSISTOR	MSD601-RT1		
Q203	8-729-010-25	TRANSISTOR	MSD601-RT1		
Q250	8-729-010-25	TRANSISTOR	MSD601-RT1		

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R203	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R204	1-216-079-00	METAL CHIP	18K	5%	1/10W
R205	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R206	1-216-079-00	METAL CHIP	18K	5%	1/10W
R207	1-216-174-00	METAL GLAZE	100	5%	1/8W
R208	1-216-025-00	METAL CHIP	100	5%	1/10W
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W
R210	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R211	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R212	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R213	1-216-097-00	METAL CHIP	100K	5%	1/10W
R214	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R215	1-216-083-00	METAL CHIP	27K	5%	1/10W
R216	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R217	1-216-121-00	METAL CHIP	1M	5%	1/10W
R218	1-216-025-00	METAL CHIP	100	5%	1/10W
R219	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R220	1-216-073-00	METAL CHIP	10K	5%	1/10W
R221	1-216-081-00	METAL CHIP	22K	5%	1/10W
R222	1-216-105-00	METAL CHIP	220K	5%	1/10W
R223	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R224	1-216-295-00	METAL CHIP	0	5%	1/10W
R228	1-216-296-91	METAL GLAZE	0	5%	1/8W
R230	1-216-296-91	METAL GLAZE	0	5%	1/8W
R240	1-216-228-00	METAL GLAZE	18K	5%	1/8W
R241	1-216-079-00	METAL CHIP	18K	5%	1/10W
R250	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R251	1-216-081-00	METAL CHIP	22K	5%	1/10W
R252	1-216-073-00	METAL CHIP	10K	5%	1/10W
R253	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R260	1-216-295-00	METAL CHIP	0	5%	1/10W
R261	1-216-295-00	METAL CHIP	0	5%	1/10W

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description			Remark
RV201	1-223-525-11	RES, VAR, CARBON 10K/10K (PHONE LEVEL)			

****

FL-57

Ref. No.	Part No.	Description	Remark
*	A-7063-767-A	FL-57 BOARD, COMPLETE	
		**********************	
		(Ref.No 6,000 series)	
*	3-947-530-01	HOLDER, TERMINAL, S	
		< CAPACITOR >	
C102	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C103	1-126-157-11	ELECT 10uF 20%	16V
C104	1-163-109-00	CERAMIC CHIP 47PF 5%	50V
C105	1-163-109-00	CERAMIC CHIP 47PF 5%	50V
C107	1-126-157-11	ELECT 10uF 20%	16V
C108	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C109	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C110	1-164-005-11	CERAMIC CHIP 0.47uF	25V
C111	1-164-005-11	CERAMIC CHIP 0.47uF	25V
C112	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C113	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C115	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C118	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C156	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C158	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C159	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C175	1-163-038-00	CERAMIC CHIP 0.1uF	25V
		< CONNECTOR >	
* CN101	1-691-074-11	HOUSING, CONNECTOR 15P	
CN102	1-569-340-11	CONNECTOR, BOARD TO BOARD 11P	
		< DIODE >	
D102	8-719-421-59	DIODE MA3130WA-TX	
D104	8-719-421-59	DIODE MA3130WA-TX	
D106	8-719-104-34	DIODE 1S2836	
D107	8-719-421-59	DIODE MA3130WA-TX	
D109	8-719-421-59	DIODE MA3130WA-TX	
D110	8-719-420-14	DIODE MA8082-M	
D112	8-719-421-59	DIODE MA3130WA-TX	
D125	8-719-955-04	LED PY5504S-1 (POWER)	
D126	8-719-955-04	LED PY5504S-1 (POWER)	
D151	8-719-420-14	DIODE MA8082-M	
D152	8-719-420-14	DIODE MA8082-M	
D153	8-719-420-14	DIODE MA8082-M	
D155	8-719-420-14	DIODE MA8082-M	
		< IC >	
IC101	8-759-924-46	IC BA4560F	

Ref. No.	Part No.	Description	Remark
		< JACK >	
J101	1-566-850-31	CONNECTOR, (S) TERMINAL 4P (LINE IN 2 S VIDEO)	
J102	1-695-920-21	JACK, ULTRA MINIATURE 1P (LANC)	
J103	1-764-149-11	JACK, PIN 3P (LINE IN 2 VIDEO/AUDIO)	
		< JUMPER RESISTOR >	
JR100	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR101	1-216-295-00	METAL CHIP 0 5%	1/10W
JR102	1-216-295-00	METAL CHIP 0 5%	1/10W
JR103	1-216-295-00	METAL CHIP 0 5%	1/10W
JR104	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR105	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR106	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR107	1-216-295-00	METAL CHIP 0 5%	1/10W
JR109	1-216-295-00	METAL CHIP 0 5%	1/10W
JR110	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR111	1-216-295-00	METAL CHIP 0 5%	1/10W
JR113	1-216-296-91	METAL GLAZE 0 5%	1/8W
		< TRANSISTOR >	
Q101	8-729-422-29	TRANSISTOR 2SD601A-S	
Q102	8-729-422-29	TRANSISTOR 2SD601A-S	
		< RESISTOR >	
R101	1-216-025-00	METAL CHIP 100 5%	1/10W
R102	1-216-097-00	METAL CHIP 100K 5%	1/10W
R103	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R104	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R105	1-216-001-00	METAL CHIP 10 5%	1/10W
R106	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R107	1-216-105-00	METAL CHIP 220K 5%	1/10W
R108	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R109	1-216-105-00	METAL CHIP 220K 5%	1/10W
R110	1-216-105-00	METAL CHIP 220K 5%	1/10W
R111	1-216-105-00	METAL CHIP 220K 5%	1/10W
R112	1-216-073-00	METAL CHIP 10K 5%	1/10W
R113	1-216-073-00	METAL CHIP 10K 5%	1/10W
R114	1-216-105-00	METAL CHIP 220K 5%	1/10W
R115	1-216-015-00	METAL CHIP 39 5%	1/10W
R116	1-216-015-00	METAL CHIP 39 5%	1/10W
R117	1-216-105-00	METAL CHIP 220K 5%	1/10W
R118	1-216-015-00	METAL CHIP 39 5%	1/10W
R119	1-216-015-00	METAL CHIP 39 5%	1/10W
R120	1-216-015-00	METAL CHIP 39 5%	1/10W
R121	1-216-015-00	METAL CHIP 39 5%	1/10W
R122	1-216-031-00	METAL CHIP 180 5%	1/10W
R139	1-216-295-00	METAL CHIP 0 5%	1/10W

Ref. No.	Part No.	Description			Remark
R140	1-216-295-00	METAL CHIP	0	5%	1/10W
R150	1-216-295-00	METAL CHIP	0	5%	1/10W
R160	1-216-031-00	METAL CHIP	180	5%	1/10W
R179	1-216-295-00	METAL CHIP	0	5%	1/10W
R180	1-216-295-00	METAL CHIP	0	5%	1/10W
R181	1-216-296-91	METAL GLAZE	0	5%	1/8W
R182	1-216-295-00	METAL CHIP	0	5%	1/10W
R183	1-216-295-00	METAL CHIP	0	5%	1/10W
R184	1-216-295-00	METAL CHIP	0	5%	1/10W

< SWITCH >

Ref. No.	Part No.	Description
S101	1-571-977-11	SWITCH, TACTIL (POWER ON/OFF)
S102	1-571-977-11	SWITCH, TACTIL (● CL)
S103	1-571-977-11	SWITCH, TACTIL (OPERATION PANEL OPEN/CLOSE)

****

* A-7053-990-A FM-16 (H) BOARD, COMPLETE
(Ref.No 7,000 series)

****

Ref. No.	Part No.	Description
	1-751-609-11	CABLE, FLAT (FMF-5)
*	3-955-927-01	CASE (MAIN), SHIELD, DD
*	3-955-955-01	HOLDER, INDICATION TUBE

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C101	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C103	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C104	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C106	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C107	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C108	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C109	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C111	1-126-157-11	ELECT	10uF	20%	16V
C117	1-124-638-11	ELECT	22uF	20%	10V
C118	1-124-638-11	ELECT	22uF	20%	10V
C121	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C122	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C123	1-126-154-11	ELECT	47uF	20%	6.3V
C124	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C125	1-126-157-11	ELECT	10uF	20%	16V
C126	1-126-157-11	ELECT	10uF	20%	16V
C201	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C202	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C203	1-127-531-11	ELECT(SOLID)	33uF	20%	16V
C204	1-126-373-11	ELECT	470uF	20%	10V
C205	1-126-803-11	ELECT	47uF	20%	50V
C206	1-128-226-11	ELECT	220uF	20%	35V
C207	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C208	1-124-667-11	ELECT	10uF	20%	100V
C209	1-163-038-00	CERAMIC CHIP	0.1uF		25V

< CONNECTOR >

Ref. No.	Part No.	Description			Remark
* CN101	1-565-854-11	CONNECTOR, F.P.C 25P			
* CN102	1-565-854-11	CONNECTOR, F.P.C 25P			
* CN103	1-563-602-11	CONNECTOR, FLEXIBLE 25P			

< TRIMMER >

Ref. No.	Part No.	Description
CT101	1-141-227-00	CAP, TRIMMER 20PF

< DIODE >

Ref. No.	Part No.	Description	
D201	8-719-901-83	DIODE	1SS83
D202	8-719-901-83	DIODE	1SS83
D203	8-719-105-38	DIODE	RD3.0M-B1
D204	8-719-420-48	DIODE	MA701A

< IC >

Ref. No.	Part No.	Description	
IC101	8-759-266-37	IC	MB89096PF-G-128-BND
IC102	8-759-942-05	IC	BA6800AFVC
IC103	8-759-183-18	IC	CAT93C56K-LE10
IC104	8-759-183-20	IC	PST572KMT-T1
IC105	8-759-518-38	IC	PST572CMT
IC201	8-759-979-50	IC	FA7610N

< COIL >

Ref. No.	Part No.	Description
L101	1-408-982-11	INDUCTOR 100uH
L102	1-408-982-11	INDUCTOR 100uH
L203	1-410-794-11	INDUCTOR 330uH

< FLUORESCENT INDICATOR >

Ref. No.	Part No.	Description
ND101	1-517-189-11	INDICATOR TUBE, FLUORESCENT

< TRANSISTOR >

Ref. No.	Part No.	Description	
Q102	8-729-424-56	TRANSISTOR	UN211L
Q103	8-729-424-56	TRANSISTOR	UN211L
Q201	8-729-823-29	TRANSISTOR	2SD1805FA-F

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R101	1-216-295-00	METAL CHIP	0	5%	1/10W
R102	1-410-997-31	INDUCTOR CHIP	2.2uH		
R103	1-216-049-00	METAL CHIP	1K	5%	1/10W
R104	1-216-049-00	METAL CHIP	1K	5%	1/10W
R105	1-216-049-00	METAL CHIP	1K	5%	1/10W
R106	1-216-037-00	METAL CHIP	330	5%	1/10W
R107	1-216-037-00	METAL CHIP	330	5%	1/10W
R108	1-216-037-00	METAL CHIP	330	5%	1/10W
R109	1-216-049-00	METAL CHIP	1K	5%	1/10W
R110	1-216-037-00	METAL CHIP	330	5%	1/10W
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description	Remark
R112	1-216-037-00	METAL CHIP 330 5% 1/10W	
R113	1-216-295-00	METAL CHIP 0 5% 1/10W	
R114	1-414-235-11	INDUCTOR, FERRITE BEAD	
R115	1-216-037-00	METAL CHIP 330 5% 1/10W	
R116	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R118	1-216-295-00	METAL CHIP 0 5% 1/10W	
R119	1-216-037-00	METAL CHIP 330 5% 1/10W	
R120	1-216-037-00	METAL CHIP 330 5% 1/10W	
R121	1-216-037-00	METAL CHIP 330 5% 1/10W	
R122	1-216-037-00	METAL CHIP 330 5% 1/10W	
R123	1-216-037-00	METAL CHIP 330 5% 1/10W	
R124	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R125	1-216-037-00	METAL CHIP 330 5% 1/10W	
R126	1-414-235-11	INDUCTOR, FERRITE BEAD	
R127	1-216-037-00	METAL CHIP 330 5% 1/10W	
R128	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R129	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R130	1-216-295-00	METAL CHIP 0 5% 1/10W	
R131	1-414-235-11	INDUCTOR, FERRITE BEAD	
R132	1-216-037-00	METAL CHIP 330 5% 1/10W	
R133	1-216-037-00	METAL CHIP 330 5% 1/10W	
R134	1-216-037-00	METAL CHIP 330 5% 1/10W	
R135	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R137	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R138	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R139	1-216-037-00	METAL CHIP 330 5% 1/10W	
R140	1-216-037-00	METAL CHIP 330 5% 1/10W	
R142	1-216-037-00	METAL CHIP 330 5% 1/10W	
R143	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R144	1-216-037-00	METAL CHIP 330 5% 1/10W	
R145	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R146	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R147	1-216-295-00	METAL CHIP 0 5% 1/10W	
R149	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R152	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R153	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R154	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R155	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R157	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R158	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R159	1-216-035-00	METAL CHIP 270 5% 1/10W	
R160	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R161	1-216-035-00	METAL CHIP 270 5% 1/10W	
R162	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R163	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R164	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R165	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R166	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R167	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R168	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R169	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R170	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R171	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R172	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R173	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R174	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R175	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R176	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R177	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R178	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R179	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R180	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R181	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R182	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R183	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R184	1-216-037-00	METAL CHIP 330 5% 1/10W	
R185	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R186	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R188	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R189	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R190	1-216-295-00	METAL CHIP 0 5% 1/10W	
R191	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R192	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R194	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R195	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R196	1-216-037-00	METAL CHIP 330 5% 1/10W	
R197	1-216-295-00	METAL CHIP 0 5% 1/10W	
R199	1-216-295-00	METAL CHIP 0 5% 1/10W	
R201	1-219-162-11	FUSIBLE 3.3 5% 1/4W	F
R202	1-216-103-91	METAL GLAZE 180K 5% 1/10W	
R203	1-216-117-00	METAL CHIP 680K 5% 1/10W	
R204	1-216-076-00	METAL CHIP 13K 5% 1/10W	
R205	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R206	1-216-671-11	METAL CHIP 6.8K 0.5% 1/10W	
R207	1-216-659-11	METAL CHIP 2.2K 0.5% 1/10W	
R208	1-216-699-11	METAL CHIP 100K 0.5% 1/10W	
R209	1-216-695-11	METAL CHIP 68K 0.5% 1/10W	
R211	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R212	1-216-295-00	METAL CHIP 0 5% 1/10W	
R250	1-216-295-00	METAL CHIP 0 5% 1/10W	
R251	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< SWITCH >	
S101	1-572-561-11	SWITCH, SLIDE (REMOCON MODE)	
		< TRANSFORMER >	
T201	1-423-845-11	TRANSFORMER, CONVERTER	

Ref. No.	Part No.	Description			Remark
		< VIBRATOR >			
X101	1-567-098-31	VIBRATOR, CRYSTAL (32kHz)			
X102	1-579-126-11	VIBRATOR, CERAMIC (12MHz)			

****

Ref. No.	Part No.	Description			Remark
*	A-7063-988-A	FR-82 (H) BOARD, COMPLETE			
		*************************			
					(Ref.No 6,000 series)
	3-955-837-01	ILLUMINATOR			
	X-3943-675-1	PLATE, GROUND, LCD			
*	3-955-930-01	PLATE, LIGHT GUIDE, LCD			
*	3-955-931-01	HOLDER, LCD			
		< CAPACITOR >			
C301	1-126-157-11	ELECT	10uF	20%	16V
C302	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C303	1-124-589-11	ELECT	47uF	20%	16V
C304	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C310	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
		< CONNECTOR >			
CN301	1-563-624-11	HOUSING, CONNECTOR 21P			
CN302	1-569-337-11	CONNECTOR, BOARD TO BOARD 11P			
		< DIODE >			
D301	8-719-920-05	LED SLP281C-50 (Hi8)			
D302	8-719-812-31	LED TLR123 (REC)			
D303	8-719-812-31	LED TLR123 (TIMER REC)			
D304	8-719-812-32	LED TLY123 (VOICE BOOST)			
D305	8-719-812-32	LED TLY123			
D307	8-719-920-05	LED SLP281C-50 (CASSETTE)			
D320	8-719-800-76	DIODE 1SS226			
		< IC >			
IC301	8-741-100-61	IC SBX1617-51			
IC302	8-759-171-25	IC LC7582E			
		< JUMPER RESISTOR >			
JR301	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR302	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR303	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR304	1-216-295-00	METAL CHIP	0	5%	1/10W
JR305	1-216-295-00	METAL CHIP	0	5%	1/10W
JR306	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR307	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR308	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR309	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR310	1-216-295-00	METAL CHIP	0	5%	1/10W
JR311	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR312	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR313	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR314	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR315	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR316	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR317	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR318	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR319	1-216-295-00	METAL CHIP	0	5%	1/10W
JR320	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR321	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR322	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR323	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR324	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR325	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR326	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR327	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR328	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR329	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR330	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR331	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR332	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR333	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR334	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR335	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR336	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR337	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR338	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR339	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR341	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR343	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR344	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR345	1-216-295-00	METAL CHIP	0	5%	1/10W
JR346	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR347	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR348	1-216-295-00	METAL CHIP	0	5%	1/10W
JR349	1-216-295-00	METAL CHIP	0	5%	1/10W
JR350	1-216-295-00	METAL CHIP	0	5%	1/10W
JR351	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR352	1-216-295-00	METAL CHIP	0	5%	1/10W
JR353	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR354	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR355	1-216-296-91	METAL GLAZE	0	5%	1/8W
		< LIQUID CRYSTAL DISPLAY >			
LCD301	1-810-324-21	DISPLAY PANEL, LIQUID CRYSTAL			

Ref. No.	Part No.	Description			Remark
		< PILOT LAMP >			
PL301	1-517-243-11	LAMP, PILOT			
PL302	1-517-243-11	LAMP, PILOT			
		< TRANSISTOR >			
Q303	8-729-421-19	TRANSISTOR	UN2213		
Q304	8-729-421-19	TRANSISTOR	UN2213		
Q305	8-729-421-19	TRANSISTOR	UN2213		
Q307	8-729-421-19	TRANSISTOR	UN2213		
Q321	8-729-420-74	TRANSISTOR	2SD1328-RST		
		< RESISTOR >			
R301	1-216-031-00	METAL CHIP	180	5%	1/10W
R302	1-216-031-00	METAL CHIP	180	5%	1/10W
R303	1-216-031-00	METAL CHIP	180	5%	1/10W
R304	1-216-031-00	METAL CHIP	180	5%	1/10W
R305	1-216-031-00	METAL CHIP	180	5%	1/10W
R306	1-216-336-11	METAL CHIP	47K	1%	1/10W
R307	1-216-031-00	METAL CHIP	180	5%	1/10W
R308	1-216-033-00	METAL CHIP	220	5%	1/10W
R310	1-216-336-11	METAL CHIP	47K	1%	1/10W
R311	1-216-336-11	METAL CHIP	47K	1%	1/10W
R312	1-216-295-00	METAL CHIP	0	5%	1/10W
R315	1-216-295-00	METAL CHIP	0	5%	1/10W
R320	1-216-043-00	METAL CHIP	560	5%	1/10W
R321	1-216-073-00	METAL CHIP	10K	5%	1/10W
R322	1-216-296-00	METAL CHIP	0	5%	1/8W
R323	1-216-296-00	METAL CHIP	0	5%	1/8W
R330	1-216-295-00	METAL CHIP	0	5%	1/10W
R350	1-216-295-00	METAL CHIP	0	5%	1/10W
		< SWITCH >			
S301	1-571-977-11	SWITCH, TACTIL (EJECT)			

****

* A-7063-985-A MA-173 (H) BOARD, COMPLETE

****

(Ref. No 3,000 series)

Ref. No.	Part No.	Description			Remark
	1-751-605-11	CABLE, FLAT (FMF-6)			
		< CAPACITOR >			
C001	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C003	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C004	1-124-477-11	ELECT	47uF	20%	25V
C005	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C006	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C007	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C008	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C009	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C010	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C011	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C012	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C013	1-124-472-11	ELECT	470uF	20%	10V
C014	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C016	1-124-471-00	ELECT	1000uF	20%	6.3V
C018	1-126-157-11	ELECT	10uF	20%	16V
C019	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C020	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C021	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C022	1-126-157-11	ELECT	10uF	20%	16V
C023	1-124-471-00	ELECT	1000uF	20%	6.3V
C024	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C025	1-125-507-11	CAP, DOUBLE LAYERS	0.22F		
C026	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C027	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C029	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C030	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C031	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C032	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C033	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C034	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C035	1-162-587-11	CERAMIC CHIP	0.039uF	10%	25V
C036	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C037	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C038	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C039	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C040	1-124-257-00	ELECT	2.2uF	20%	50V
C041	1-126-157-11	ELECT	10uF	20%	16V
C042	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C043	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C044	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C045	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C046	1-126-157-11	ELECT	10uF	20%	16V
C048	1-163-087-00	CERAMIC CHIP	4PF		50V
C049	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C050	1-126-157-11	ELECT	10uF	20%	16V
C051	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C052	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C053	1-126-157-11	ELECT	10uF	20%	16V
C054	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C055	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C056	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C057	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C058	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C060	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C061	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C062	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V

Ref. No.	Part No.	Description			Remark
C063	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C064	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C066	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C067	1-124-589-11	ELECT	47uF	20%	16V
C069	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C070	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C071	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C072	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C078	1-126-157-11	ELECT	10uF	20%	16V
C081	1-126-157-11	ELECT	10uF	20%	16V
C082	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C083	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C084	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C085	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C086	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C088	1-126-157-11	ELECT	10uF	20%	16V
C090	1-126-157-11	ELECT	10uF	20%	16V
C092	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C093	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C095	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C096	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C097	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C098	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C302	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C303	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C304	1-124-638-11	ELECT	22uF	20%	10V
C305	1-124-589-11	ELECT	47uF	20%	16V
C306	1-127-530-11	ELECT(SOLID)	22uF	20%	20V
C307	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C308	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C309	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C311	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C312	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C313	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C314	1-124-589-11	ELECT	47uF	20%	16V
C315	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C316	1-126-301-11	ELECT	1uF	20%	50V
C317	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C318	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C319	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C322	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C323	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C324	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C325	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C326	1-127-530-11	ELECT(SOLID)	22uF	20%	20V
C327	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C328	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C329	1-127-491-00	ELECT(SOLID)	22uF	20%	10V
C332	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C333	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C334	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C335	1-124-589-11	ELECT	47uF	20%	16V
C337	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C338	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C339	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C340	1-126-163-11	ELECT	4.7uF	20%	50V
C341	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C342	1-164-107-11	CERAMIC CHIP	0.15uF	10%	16V
C343	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C344	1-164-107-11	CERAMIC CHIP	0.15uF	10%	16V
C345	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C346	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C347	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C348	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C349	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C350	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C351	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C352	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C353	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C354	1-124-589-11	ELECT	47uF	20%	16V
C356	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C357	1-124-589-11	ELECT	47uF	20%	16V
C358	1-124-589-11	ELECT	47uF	20%	16V
C362	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C363	1-163-036-00	CERAMIC CHIP	0.068uF		50V
C364	1-163-036-00	CERAMIC CHIP	0.068uF		50V
C365	1-163-036-00	CERAMIC CHIP	0.068uF		50V
C401	1-124-442-00	ELECT	330uF	20%	6.3V
C402	1-124-442-00	ELECT	330uF	20%	6.3V
C403	1-124-635-00	ELECT	220uF	20%	6.3V
C404	1-124-635-00	ELECT	220uF	20%	6.3V
C405	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C406	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C409	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C410	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C411	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C412	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C415	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C416	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C423	1-126-157-11	ELECT	10uF	20%	16V
C424	1-126-157-11	ELECT	10uF	20%	16V
C425	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C426	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C427	1-124-477-11	ELECT	47uF	20%	25V
C428	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C429	1-124-477-11	ELECT	47uF	20%	25V
C431	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C432	1-163-109-00	CERAMIC CHIP	47PF	5%	50V

Ref. No.	Part No.	Description			Remark
C437	1-126-157-11	ELECT	10uF	20%	16V
C438	1-126-157-11	ELECT	10uF	20%	16V
C443	1-163-038-00	CERAMIC CHIP	0. 1uF		25V
C447	1-163-038-00	CERAMIC CHIP	0. 1uF		25V
C501	1-126-157-11	ELECT	10uF	20%	16V
C502	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C503	1-124-257-00	ELECT	2. 2uF	20%	50V
C504	1-126-157-11	ELECT	10uF	20%	16V
C505	1-126-163-11	ELECT	4. 7uF	20%	50V
C506	1-163-017-00	CERAMIC CHIP	0. 0047uF	5%	50V
C507	1-124-477-11	ELECT	47uF	20%	25V
C508	1-126-163-11	ELECT	4. 7uF	20%	50V
C509	1-163-017-00	CERAMIC CHIP	0. 0047uF	5%	50V
C510	1-163-017-00	CERAMIC CHIP	0. 0047uF	5%	50V
C511	1-126-163-11	ELECT	4. 7uF	20%	50V
C512	1-126-157-11	ELECT	10uF	20%	16V
C513	1-124-229-00	ELECT	33uF	20%	10V
C514	1-126-163-11	ELECT	4. 7uF	20%	50V
C515	1-124-477-11	ELECT	47uF	20%	25V
C516	1-126-163-11	ELECT	4. 7uF	20%	50V
C517	1-124-477-11	ELECT	47uF	20%	25V
C519	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C520	1-126-163-11	ELECT	4. 7uF	20%	50V
C522	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C523	1-126-163-11	ELECT	4. 7uF	20%	50V
C525	1-126-163-11	ELECT	4. 7uF	20%	50V
C526	1-163-020-00	CERAMIC CHIP	0. 0082uF	10%	50V
C527	1-163-017-00	CERAMIC CHIP	0. 0047uF	5%	50V
C528	1-163-017-00	CERAMIC CHIP	0. 0047uF	5%	50V
C530	1-126-163-11	ELECT	4. 7uF	20%	50V
C531	1-124-477-11	ELECT	47uF	20%	25V
C532	1-126-163-11	ELECT	4. 7uF	20%	50V
C533	1-163-017-00	CERAMIC CHIP	0. 0047uF	5%	50V
C534	1-126-157-11	ELECT	10uF	20%	16V
C535	1-124-257-00	ELECT	2. 2uF	20%	50V
C536	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C537	1-126-157-11	ELECT	10uF	20%	16V
C538	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C539	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C540	1-126-157-11	ELECT	10uF	20%	16V
C541	1-126-301-11	ELECT	1uF	20%	50V
C542	1-126-163-11	ELECT	4. 7uF	20%	50V
C543	1-164-005-11	CERAMIC CHIP	0. 47uF		25V
C544	1-164-005-11	CERAMIC CHIP	0. 47uF		25V
C545	1-164-232-11	CERAMIC CHIP	0. 01uF		50V
C546	1-163-809-11	CERAMIC CHIP	0. 047uF	10%	25V
C547	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C548	1-126-301-11	ELECT	1uF	20%	50V
C549	1-164-232-11	CERAMIC CHIP	0. 01uF		50V
C551	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C552	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C553	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C554	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C555	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C556	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C557	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C558	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C559	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C560	1-163-019-00	CERAMIC CHIP	0. 0068uF	10%	50V
C561	1-164-232-11	CERAMIC CHIP	0. 01uF		50V
C562	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C563	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C564	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C565	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C566	1-163-038-00	CERAMIC CHIP	0. 1uF		25V
C567	1-126-163-11	ELECT	4. 7uF	20%	50V
C568	1-126-163-11	ELECT	4. 7uF	20%	50V
C570	1-126-157-11	ELECT	10uF	20%	16V
C571	1-124-292-00	ELECT	33uF	20%	6. 3V
C572	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C573	1-163-038-00	CERAMIC CHIP	0. 1uF		25V
C575	1-124-292-00	ELECT	33uF	20%	6. 3V
C576	1-126-157-11	ELECT	10uF	20%	16V
C582	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C583	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C584	1-126-157-11	ELECT	10uF	20%	16V
C585	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C586	1-126-157-11	ELECT	10uF	20%	16V
C587	1-126-157-11	ELECT	10uF	20%	16V
C590	1-164-004-11	CERAMIC CHIP	0. 1uF	10%	25V
C591	1-163-809-11	CERAMIC CHIP	0. 047uF	10%	25V
C592	1-164-004-11	CERAMIC CHIP	0. 1uF	10%	25V
C593	1-163-809-11	CERAMIC CHIP	0. 047uF	10%	25V
C594	1-163-017-00	CERAMIC CHIP	0. 0047uF	5%	50V
C651	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C652	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C653	1-163-009-11	CERAMIC CHIP	0. 001uF	10%	50V
C654	1-163-009-11	CERAMIC CHIP	0. 001uF	10%	50V
C655	1-163-009-11	CERAMIC CHIP	0. 001uF	10%	50V
C656	1-163-009-11	CERAMIC CHIP	0. 001uF	10%	50V
C657	1-163-009-11	CERAMIC CHIP	0. 001uF	10%	50V
C658	1-163-009-11	CERAMIC CHIP	0. 001uF	10%	50V
C701	1-124-638-11	ELECT	22uF	20%	10V
C702	1-124-638-11	ELECT	22uF	20%	10V
C703	1-163-031-11	CERAMIC CHIP	0. 01uF		50V
C704	1-124-638-11	ELECT	22uF	20%	10V
C705	1-124-638-11	ELECT	22uF	20%	10V
C706	1-163-031-11	CERAMIC CHIP	0. 01uF		50V

Ref. No.	Part No.	Description	Remark		
C708	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C710	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C711	1-124-638-11	ELECT	22uF	20%	10V
C713	1-124-638-11	ELECT	22uF	20%	10V
C724	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C725	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C726	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C727	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C728	1-126-157-11	ELECT	10uF	20%	16V
C729	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C730	1-124-443-00	ELECT	100uF	20%	10V
C741	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C742	1-126-154-11	ELECT	47uF	20%	6.3V
C746	1-124-257-00	ELECT	2.2uF	20%	50V
C748	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C749	1-124-477-11	ELECT	47uF	20%	25V
C750	1-126-177-11	ELECT	100uF	20%	10V
C751	1-124-638-11	ELECT	22uF	20%	10V
C752	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C753	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C755	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C756	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C757	1-126-154-11	ELECT	47uF	20%	6.3V
C760	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C762	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C763	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C764	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C766	1-124-638-11	ELECT	22uF	20%	10V
C768	1-124-638-11	ELECT	22uF	20%	10V
C769	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C770	1-126-154-11	ELECT	47uF	20%	6.3V
C771	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C772	1-126-154-11	ELECT	47uF	20%	6.3V
C773	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C774	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C775	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C776	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C777	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C778	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C780	1-124-257-00	ELECT	2.2uF	20%	50V
C781	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C782	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C783	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C784	1-126-301-11	ELECT	1uF	20%	50V
C785	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C786	1-124-477-11	ELECT	47uF	20%	25V
C790	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C791	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C792	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C793	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C794	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C801	1-124-638-11	ELECT	22uF	20%	10V
C802	1-124-638-11	ELECT	22uF	20%	10V
C803	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C805	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C806	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C807	1-124-443-00	ELECT	100uF	20%	10V
C808	1-124-477-11	ELECT	47uF	20%	25V
C809	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C810	1-126-157-11	ELECT	10uF	20%	16V
C811	1-124-638-11	ELECT	22uF	20%	10V
C812	1-124-443-00	ELECT	100uF	20%	10V
C813	1-126-157-11	ELECT	10uF	20%	16V
C814	1-124-638-11	ELECT	22uF	20%	10V
C815	1-124-443-00	ELECT	100uF	20%	10V
C816	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C817	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C821	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C822	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C823	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C824	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C830	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C831	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C832	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C833	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C835	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C836	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C837	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C838	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C850	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C851	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C852	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C853	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C854	1-126-157-11	ELECT	10uF	20%	16V
C856	1-126-154-11	ELECT	47uF	20%	6.3V
C857	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C859	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C860	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C861	1-126-157-11	ELECT	10uF	20%	16V
C863	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C864	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C865	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C869	1-127-558-11	ELECT(SOLID)	10uF	20%	10V
C970	1-124-589-11	ELECT	47uF	20%	16V
C972	1-124-589-11	ELECT	47uF	20%	16V
C973	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C974	1-124-477-11	ELECT	47uF	20%	25V
C975	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description	Remark
C976	1-124-477-11	ELECT 47uF 20%	25V
C977	1-163-031-11	CERAMIC CHIP 0.01uF	50V
		< CONNECTOR >	
* CN001	1-691-059-21	HOUSING, CONNECTOR 27P	
* CN002	1-691-059-21	HOUSING, CONNECTOR 27P	
CN004	1-691-053-21	HOUSING, CONNECTOR 21P	
CN005	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN006	1-573-842-11	CONNECTOR, BOARD TO BOARD 10P	
CN007	1-563-588-11	CONNECTOR, FLEXIBLE 11P	
CN008	1-691-057-21	HOUSING, CONNECTOR 25P	
CN009	1-764-055-11	CONNECTOR, BOARD TO BOARD 40P	
CN010	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN011	1-750-554-11	CONNECTOR, BOARD TO BOARD 19P	
* CN101	1-560-900-00	PIN, CONNECTOR 12P	
* CN102	1-560-897-00	PIN, CONNECTOR 9P	
CN104	1-569-340-11	CONNECTOR, BOARD TO BOARD 11P	
CN105	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN106	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
* CN301	1-564-001-11	PIN, CONNECTOR 2P	
* CN302	1-563-373-11	SOCKET, CONNECTOR 25P	
* CN303	1-564-004-11	PIN, CONNECTOR 5P	
CN501	1-573-842-11	CONNECTOR, BOARD TO BOARD 10P	
* CN502	1-691-072-11	HOUSING, CONNECTOR 13P	
* CN601	1-691-059-21	HOUSING, CONNECTOR 27P	
		< DIODE >	
D001	8-719-801-78	DIODE 1SS184	
D002	8-719-801-78	DIODE 1SS184	
D003	8-719-210-39	DIODE EC10QS-04	
D004	8-719-210-39	DIODE EC10QS-04	
D005	8-719-801-78	DIODE 1SS184	
D006	8-719-210-39	DIODE EC10QS-04	
D007	8-719-801-78	DIODE 1SS184	
D008	8-719-801-78	DIODE 1SS184	
D010	8-719-801-78	DIODE 1SS184	
D011	8-719-106-08	DIODE RD6.2M-B2	
D012	8-719-801-78	DIODE 1SS184	
D016	8-719-210-39	DIODE EC10QS-04	
D021	8-719-017-58	DIODE MA8068	
D301	8-719-104-34	DIODE 1S2836	
D302	8-719-106-44	DIODE RD9.1M-B2	
D303	8-719-938-78	DIODE SB10-05PCP	
D304	8-719-938-75	DIODE SB05-05CP	
D651	8-719-421-59	DIODE MA3130WA-TX	
D652	8-719-421-59	DIODE MA3130WA-TX	
D653	8-719-421-59	DIODE MA3130WA-TX	
D654	8-719-421-59	DIODE MA3130WA-TX	

Ref. No.	Part No.	Description	Remark
D655	8-719-421-59	DIODE MA3130WA-TX	
D656	8-719-421-59	DIODE MA3130WA-TX	
D657	8-719-106-43	DIODE RD9.1M-B1	
D658	8-719-106-43	DIODE RD9.1M-B1	
D701	8-719-801-78	DIODE 1SS184	
D702	8-719-801-78	DIODE 1SS184	
D715	8-719-421-59	DIODE MA3130WA-TX	
D716	8-719-421-59	DIODE MA3130WA-TX	
D717	8-719-421-59	DIODE MA3130WA-TX	
D719	8-719-421-59	DIODE MA3130WA-TX	
D720	8-719-421-59	DIODE MA3130WA-TX	
D721	8-719-421-59	DIODE MA3130WA-TX	
D722	8-719-421-59	DIODE MA3130WA-TX	
D723	8-719-421-59	DIODE MA3130WA-TX	
D724	8-719-421-59	DIODE MA3130WA-TX	
D730	8-719-106-43	DIODE RD9.1M-B1	
D731	8-719-106-43	DIODE RD9.1M-B1	
D732	8-719-106-43	DIODE RD9.1M-B1	
D734	8-719-106-43	DIODE RD9.1M-B1	
D735	8-719-106-43	DIODE RD9.1M-B1	
D736	8-719-106-43	DIODE RD9.1M-B1	
D737	8-719-106-43	DIODE RD9.1M-B1	
		< FERRITE BEAD >	
FB001	1-543-256-11	BEAD, FERRITE	
FB002	1-543-256-11	BEAD, FERRITE	
FB003	1-543-256-11	BEAD, FERRITE	
FB004	1-543-256-11	BEAD, FERRITE	
FB005	1-543-256-11	BEAD, FERRITE	
FB006	1-543-256-11	BEAD, FERRITE	
FB007	1-216-296-91	METAL GLAZE 0 5%	1/8W
FB008	1-414-234-11	INDUCTOR, FERRITE BEAD	
FB009	1-216-295-00	METAL CHIP 0 5%	1/10W
FB651	1-216-295-00	METAL CHIP 0 5%	1/10W
FB652	1-216-295-00	METAL CHIP 0 5%	1/10W
FB654	1-414-235-11	INDUCTOR, FERRITE BEAD	
FB655	1-414-235-11	INDUCTOR, FERRITE BEAD	
FB801	1-216-295-00	METAL CHIP 0 5%	1/10W
FB802	1-216-295-00	METAL CHIP 0 5%	1/10W
FB803	1-216-295-00	METAL CHIP 0 5%	1/10W
FB804	1-216-295-00	METAL CHIP 0 5%	1/10W
FB805	1-216-295-00	METAL CHIP 0 5%	1/10W
FB806	1-216-295-00	METAL CHIP 0 5%	1/10W
FB807	1-216-295-00	METAL CHIP 0 5%	1/10W
FB808	1-216-295-00	METAL CHIP 0 5%	1/10W
FB809	1-216-295-00	METAL CHIP 0 5%	1/10W
FB810	1-216-295-00	METAL CHIP 0 5%	1/10W
FB811	1-216-295-00	METAL CHIP 0 5%	1/10W
FB812	1-216-295-00	METAL CHIP 0 5%	1/10W

Ref. No.	Part No.	Description	Remark
FB813	1-216-295-00	METAL CHIP 0 5% 1/10W	
FB814	1-216-295-00	METAL CHIP 0 5% 1/10W	
FB815	1-216-295-00	METAL CHIP 0 5% 1/10W	
FB816	1-216-295-00	METAL CHIP 0 5% 1/10W	
FB901	1-216-295-00	METAL CHIP 0 5% 1/10W	
FB902	1-216-295-00	METAL CHIP 0 5% 1/10W	
FB904	1-216-296-91	METAL GLAZE 0 5% 1/8W	
FB905	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< FILTER >	
FL501	1-236-837-21	FILTER, BAND PASS	
FL502	1-236-838-21	FILTER, BAND PASS	
		< IC >	
IC001	8-752-842-88	IC CXP2004M	
IC002	8-759-266-36	IC MB89096PF-G-127-BND	
IC003	8-752-847-35	IC CXP87140-013Q	
IC004	8-759-183-18	IC CAT93C56K-LE10	
IC005	8-759-999-02	IC TL1596CDB	
IC006	8-759-998-92	IC LM393D	
IC007	8-759-998-98	IC LM358D	
IC009	8-759-070-96	IC CXA1481AQ	
IC010	8-759-635-27	IC M62352GP	
IC012	8-759-182-84	IC PQ05SZ5U	
IC301	8-759-182-89	IC BA6219BFP-Y	
IC302	8-759-945-17	IC MB3775PF	
IC303	8-759-148-05	IC CXA8010M	
IC305	8-759-166-78	IC CXA8006BM-ELL1000	
IC306	8-759-055-62	IC BA6440-T1	
IC307	8-759-172-41	IC L78M09T-TL	
IC401	8-759-924-46	IC BA4560F	
IC402	8-759-300-71	IC HD14053BFP	
IC403	8-759-924-46	IC BA4560F	
IC404	8-759-009-06	IC MC14052BF	
IC405	8-759-170-73	IC TA78L12S	
IC406	8-759-069-14	IC M51132L	
IC407	8-759-009-06	IC MC14052BF	
IC408	8-759-924-46	IC BA4560F	
IC501	8-759-077-11	IC CXA1542Q	
IC502	8-759-189-19	IC AN3900NSC-E2	
IC504	8-759-909-71	IC BA4558F	
IC701	8-752-052-58	IC CXA1410M	
IC703	8-759-164-18	IC MM1118XFF	
IC704	8-759-164-18	IC MM1118XFF	
IC705	8-759-089-80	IC MB90084PF-128	
IC706	8-759-164-09	IC LA7218M	
IC707	8-759-182-16	IC MM1196XFBE	
IC950	8-759-182-84	IC PQ05SZ5U	
IC951	8-759-182-91	IC PQ12TZ5U	
IC952	8-759-182-86	IC PQ05TZ5U	
		< JACK >	
J801	1-537-627-11	TERMINAL BOARD (LINE IN 1/LINE OUT 1/LINE OUT 2)	
J802	1-507-678-00	JACK (CONTROL S IN)	
J803	1-691-258-11	JACK (LANC)	
J804	1-691-258-21	JACK (CABLE BOX CONTROL)	
		< JUMPER RESISTOR >	
JR001	1-414-235-11	INDUCTOR, FERRITE BEAD	
JR002	1-414-235-11	INDUCTOR, FERRITE BEAD	
JR003	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR004	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
JR005	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
JR006	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR007	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR008	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR009	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR010	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR011	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR012	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR013	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR014	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR015	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR016	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR017	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR018	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR019	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR020	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR021	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR022	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR023	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR024	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR025	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR026	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR027	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR028	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR029	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR030	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR031	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR032	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR033	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR034	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR035	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR036	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR037	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR038	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR039	1-216-025-00	METAL CHIP 100 5% 1/10W	

Ref. No.	Part No.	Description	Remark
JR040	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR041	1-216-073-00	METAL CHIP 10K 5% 1/10W	
JR042	1-216-025-00	METAL CHIP 100 5% 1/10W	
JR043	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR044	1-216-025-00	METAL CHIP 100 5% 1/10W	
JR045	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR046	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR047	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR048	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR049	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR050	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR051	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR052	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR053	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR054	1-410-997-31	INDUCTOR CHIP 2.2uH	
JR055	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR056	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR057	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR058	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR059	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR060	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR061	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR062	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR063	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR064	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR065	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR066	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR067	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR068	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR069	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR070	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR071	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR072	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR073	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR074	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR075	1-216-073-00	METAL CHIP 10K 5% 1/10W	
JR076	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR077	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR078	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR079	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR080	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR083	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR085	1-410-997-31	INDUCTOR CHIP 2.2uH	
JR086	1-216-033-00	METAL CHIP 220 5% 1/10W	
JR087	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR088	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR089	1-216-025-00	METAL CHIP 100 5% 1/10W	
JR090	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR091	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR092	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR093	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR094	1-216-073-00	METAL CHIP 10K 5% 1/10W	
JR095	1-216-073-00	METAL CHIP 10K 5% 1/10W	
JR096	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR100	1-216-041-00	METAL CHIP 470 5% 1/10W	
JR101	1-216-041-00	METAL CHIP 470 5% 1/10W	
JR102	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR104	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR105	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR110	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR111	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR112	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR113	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR114	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR115	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR117	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR118	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR119	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR120	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR121	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR122	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR123	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR124	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR125	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR126	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR127	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR128	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR129	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR130	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR131	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR132	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR133	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR134	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR135	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR136	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR137	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR138	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR139	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR140	1-216-049-00	METAL CHIP 1K 5% 1/10W	
JR141	1-216-097-00	METAL CHIP 100K 5% 1/10W	
JR142	1-216-097-00	METAL CHIP 100K 5% 1/10W	
JR154	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR155	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR156	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR157	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR158	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR160	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR162	1-216-295-00	METAL CHIP 0 5% 1/10W	

Ref. No.	Part No.	Description	Remark
JR163	1-216-295-00	METAL CHIP 0 5%	1/10W
JR164	1-216-295-00	METAL CHIP 0 5%	1/10W
JR165	1-216-049-00	METAL CHIP 1K 5%	1/10W
JR166	1-216-295-00	METAL CHIP 0 5%	1/10W
JR167	1-216-295-00	METAL CHIP 0 5%	1/10W
JR168	1-216-295-00	METAL CHIP 0 5%	1/10W
JR169	1-216-295-00	METAL CHIP 0 5%	1/10W
JR172	1-216-295-00	METAL CHIP 0 5%	1/10W
		< COIL >	
L001	1-408-982-11	INDUCTOR 100uH	
L002	1-410-393-11	INDUCTOR CHIP 100uH	
L003	1-408-978-21	INDUCTOR 47uH	
L004	1-408-987-21	INDUCTOR 330uH	
L005	1-408-978-21	INDUCTOR 47uH	
L008	1-408-978-21	INDUCTOR 47uH	
L301	1-408-978-21	INDUCTOR 47uH	
L302	1-424-522-21	COIL, CHOKE 10uH	
L304	1-424-524-21	COIL, CHOKE 47uH	
L305	1-424-524-21	COIL, CHOKE 47uH	
L306	1-408-978-21	INDUCTOR 47uH	
L307	1-408-978-21	INDUCTOR 47uH	
L503	1-408-982-11	INDUCTOR 100uH	
L704	1-408-978-21	INDUCTOR 47uH	
L706	1-408-974-21	INDUCTOR 22uH	
L710	1-408-974-21	INDUCTOR 22uH	
		< IC LINK >	
⚠PS001	1-532-605-00	LINK, IC 0.4A (ICP-N10)	
⚠PS301	1-532-605-00	LINK, IC 0.4A (ICP-N10)	
		< TRANSISTOR >	
Q001	8-729-420-12	TRANSISTOR XN4213	
Q003	8-729-421-19	TRANSISTOR UN2213	
Q004	8-729-424-08	TRANSISTOR UN2111	
Q005	8-729-421-19	TRANSISTOR UN2213	
Q006	8-729-421-19	TRANSISTOR UN2213	
Q007	8-729-420-12	TRANSISTOR XN4213	
Q008	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q009	8-729-421-19	TRANSISTOR UN2213	
Q010	8-729-421-19	TRANSISTOR UN2213	
Q011	8-729-140-75	TRANSISTOR 2SD999-CLCK	
Q012	8-729-140-75	TRANSISTOR 2SD999-CLCK	
Q013	8-729-901-06	TRANSISTOR DTA144EK	
Q014	8-729-421-19	TRANSISTOR UN2213	
Q015	8-729-424-08	TRANSISTOR UN2111	
Q016	8-729-402-19	TRANSISTOR XN6501	
Q018	8-729-010-05	TRANSISTOR MSB709-RT1	
Q019	8-729-421-19	TRANSISTOR UN2213	
Q020	8-729-421-19	TRANSISTOR UN2213	
Q021	8-729-010-25	TRANSISTOR MSD601-RT1	
Q023	8-729-010-25	TRANSISTOR MSD601-RT1	
Q024	8-729-424-08	TRANSISTOR UN2111	
Q025	8-729-421-19	TRANSISTOR UN2213	
Q303	8-729-402-19	TRANSISTOR XN6501	
Q304	8-729-420-12	TRANSISTOR XN4213	
Q306	8-729-421-19	TRANSISTOR UN2213	
Q307	8-729-010-25	TRANSISTOR MSD601-RT1	
Q308	8-729-010-25	TRANSISTOR MSD601-RT1	
Q309	8-729-820-86	TRANSISTOR 2SB1121-ST	
Q310	8-729-820-86	TRANSISTOR 2SB1121-ST	
Q312	8-729-420-12	TRANSISTOR XN4213	
Q403	8-729-010-25	TRANSISTOR MSD601-RT1	
Q407	8-729-901-06	TRANSISTOR DTA144EK	
Q501	8-729-402-19	TRANSISTOR XN6501	
Q502	8-729-902-99	TRANSISTOR DTC114TK	
Q503	8-729-421-19	TRANSISTOR UN2213	
Q504	8-729-010-25	TRANSISTOR MSD601-RT1	
Q506	8-729-403-07	TRANSISTOR XN1213	
Q507	8-729-421-19	TRANSISTOR UN2213	
Q508	8-729-402-19	TRANSISTOR XN6501	
Q509	8-729-402-19	TRANSISTOR XN6501	
Q512	8-729-902-99	TRANSISTOR DTC114TK	
Q513	8-729-902-99	TRANSISTOR DTC114TK	
Q514	8-729-421-19	TRANSISTOR UN2213	
Q515	8-729-421-19	TRANSISTOR UN2213	
Q516	8-729-421-19	TRANSISTOR UN2213	
Q701	8-729-421-19	TRANSISTOR UN2213	
Q705	8-729-421-19	TRANSISTOR UN2213	
Q706	8-729-010-05	TRANSISTOR MSB709-RT1	
Q707	8-729-010-25	TRANSISTOR MSD601-RT1	
Q713	8-729-402-81	TRANSISTOR XN4501	
Q715	8-729-402-81	TRANSISTOR XN4501	
Q716	8-729-421-19	TRANSISTOR UN2213	
Q717	8-729-421-19	TRANSISTOR UN2213	
Q719	8-729-010-25	TRANSISTOR MSD601-RT1	
Q720	8-729-402-84	TRANSISTOR XN4601	
Q721	8-729-402-84	TRANSISTOR XN4601	
Q730	8-729-402-84	TRANSISTOR XN4601	
Q732	8-729-402-84	TRANSISTOR XN4601	
Q733	8-729-402-84	TRANSISTOR XN4601	
		< RESISTOR >	
R007	1-216-295-00	METAL CHIP 0 5%	1/10W
R008	1-216-295-00	METAL CHIP 0 5%	1/10W
R009	1-216-295-00	METAL CHIP 0 5%	1/10W
R012	1-216-089-91	METAL GLAZE 47K 5%	1/10W

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
R013	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R014	1-216-295-00	METAL CHIP 0 5% 1/10W	
R016	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R017	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R018	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R019	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R020	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R021	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R022	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R023	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R024	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R025	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R026	1-414-235-11	INDUCTOR, FERRITE BEAD	
R027	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R028	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R029	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R030	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R031	1-216-295-00	METAL CHIP 0 5% 1/10W	
R032	1-216-295-00	METAL CHIP 0 5% 1/10W	
R033	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R034	1-216-295-00	METAL CHIP 0 5% 1/10W	
R036	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R037	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R038	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R039	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R040	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R041	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R042	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R043	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R044	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R045	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R046	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R047	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R048	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R049	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R050	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R051	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R052	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R053	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R054	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R055	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R056	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R057	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R058	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R059	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R060	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R061	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R062	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R069	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R070	1-216-296-91	METAL GLAZE 0 5% 1/8W	
R071	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R072	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R073	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R074	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R075	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R076	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R077	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R078	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R079	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R080	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R081	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R082	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R083	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R084	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R085	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R086	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R087	1-216-295-00	METAL CHIP 0 5% 1/10W	
R088	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R089	1-216-017-00	METAL CHIP 47 5% 1/10W	
R090	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R092	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R093	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R095	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R097	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R099	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R101	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R102	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R103	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R105	1-216-146-00	METAL GLAZE 6.8 5% 1/8W	
R107	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R109	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R110	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R111	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R112	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R113	1-216-129-00	METAL CHIP 2.2M 5% 1/10W	
R114	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R115	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R116	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R117	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R118	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R120	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R121	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R122	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R123	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R124	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R125	1-216-679-11	METAL CHIP 15K 0.5% 1/10W	
R126	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R127	1-216-295-00	METAL CHIP 0 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R128	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R131	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R132	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R133	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R134	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R136	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R137	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R138	1-216-074-00	METAL CHIP 11K 5% 1/10W	
R140	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R141	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R142	1-216-661-11	METAL CHIP 2.7K 0.5% 1/10W	
R143	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R144	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R145	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R146	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R147	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R148	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R149	1-216-031-00	METAL CHIP 180 5% 1/10W	
R150	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R151	1-216-037-00	METAL CHIP 330 5% 1/10W	
R153	1-216-001-00	METAL CHIP 10 5% 1/10W	
R156	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R157	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R158	1-216-037-00	METAL CHIP 330 5% 1/10W	
R159	1-216-001-00	METAL CHIP 10 5% 1/10W	
R161	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R162	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R163	1-216-295-00	METAL CHIP 0 5% 1/10W	
R164	1-216-045-00	METAL CHIP 680 5% 1/10W	
R165	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R166	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R167	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R168	1-216-041-00	METAL CHIP 470 5% 1/10W	
R169	1-216-041-00	METAL CHIP 470 5% 1/10W	
R170	1-216-172-00	METAL CHIP 82 5% 1/8W	
R171	1-414-235-11	INDUCTOR, FERRITE BEAD	
R172	1-216-295-00	METAL CHIP 0 5% 1/10W	
R173	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R174	1-216-295-00	METAL CHIP 0 5% 1/10W	
R175	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R179	1-216-295-00	METAL CHIP 0 5% 1/10W	
R180	1-216-295-00	METAL CHIP 0 5% 1/10W	
R186	1-216-295-00	METAL CHIP 0 5% 1/10W	
R198	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R199	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R200	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R204	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R205	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R207	1-216-073-00	METAL CHIP 10K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R212	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R213	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R214	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R221	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R224	1-216-295-00	METAL CHIP 0 5% 1/10W	
R234	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R303	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R304	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R306	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R308	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R309	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R312	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R314	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R317	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R318	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R319	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R320	1-216-013-00	METAL CHIP 33 5% 1/10W	
R321	1-216-013-00	METAL CHIP 33 5% 1/10W	
R322	1-216-013-00	METAL CHIP 33 5% 1/10W	
R323	1-216-013-00	METAL CHIP 33 5% 1/10W	
R324	1-216-033-00	METAL CHIP 220 5% 1/10W	
R325	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R326	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R327	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R328	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R329	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R330	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R331	1-216-045-00	METAL CHIP 680 5% 1/10W	
R332	1-216-045-00	METAL CHIP 680 5% 1/10W	
R333	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R334	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R337	1-216-048-00	METAL CHIP 910 5% 1/10W	
R338	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R339	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R340	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R343	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R346	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R347	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R348	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R349	1-218-754-11	METAL CHIP 120K 0.50% 1/10W	
R350	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R352	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R354	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R356	1-216-679-11	METAL CHIP 15K 0.5% 1/10W	
R357	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R359	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R361	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R363	1-219-107-91	METAL GLAZE 1.5 5% 1/8W	
R364	1-219-107-91	METAL GLAZE 1.5 5% 1/8W	

Ref. No.	Part No.	Description	Remark
R366	1-216-037-00	METAL CHIP 330 5% 1/10W	
R367	1-219-107-91	METAL GLAZE 1.5 5% 1/8W	
R371	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R372	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R373	1-216-683-11	METAL CHIP 22K 0.5% 1/10W	
R374	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R375	1-216-680-11	METAL CHIP 16K 0.5% 1/10W	
R377	1-217-671-11	METAL CHIP 1 5% 1/10W	
R378	1-216-683-11	METAL CHIP 22K 0.5% 1/10W	
R379	1-217-671-11	METAL CHIP 1 5% 1/10W	
R380	1-217-671-11	METAL CHIP 1 5% 1/10W	
R381	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R382	1-217-671-11	METAL CHIP 1 5% 1/10W	
R385	1-216-033-00	METAL CHIP 220 5% 1/10W	
R386	1-216-033-00	METAL CHIP 220 5% 1/10W	
R389	1-216-295-00	METAL CHIP 0 5% 1/10W	
R391	1-216-295-00	METAL CHIP 0 5% 1/10W	
R394	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R395	1-216-037-00	METAL CHIP 330 5% 1/10W	
R396	1-216-295-00	METAL CHIP 0 5% 1/10W	
R401	1-218-760-11	METAL GLAZE 220K 2% 1/10W	
R402	1-218-760-11	METAL GLAZE 220K 2% 1/10W	
R403	1-216-651-11	METAL CHIP 1K 0.5% 1/10W	
R404	1-216-651-11	METAL CHIP 1K 0.5% 1/10W	
R405	1-218-760-11	METAL GLAZE 220K 2% 1/10W	
R406	1-218-760-11	METAL GLAZE 220K 2% 1/10W	
R407	1-218-760-11	METAL GLAZE 220K 2% 1/10W	
R408	1-218-760-11	METAL GLAZE 220K 2% 1/10W	
R409	1-216-295-00	METAL CHIP 0 5% 1/10W	
R413	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R414	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R415	1-216-683-11	METAL CHIP 22K 0.5% 1/10W	
R416	1-216-683-11	METAL CHIP 22K 0.5% 1/10W	
R417	1-216-683-11	METAL CHIP 22K 0.5% 1/10W	
R418	1-216-683-11	METAL CHIP 22K 0.5% 1/10W	
R419	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R420	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R421	1-216-295-00	METAL CHIP 0 5% 1/10W	
R422	1-216-295-00	METAL CHIP 0 5% 1/10W	
R423	1-216-025-00	METAL CHIP 100 5% 1/10W	
R424	1-216-025-00	METAL CHIP 100 5% 1/10W	
R425	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R426	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R429	1-216-295-00	METAL CHIP 0 5% 1/10W	
R430	1-216-295-00	METAL CHIP 0 5% 1/10W	
R437	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
R438	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
R439	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R440	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R441	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
R442	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
R443	1-216-685-11	METAL CHIP 27K 0.5% 1/10W	
R444	1-216-685-11	METAL CHIP 27K 0.5% 1/10W	
R445	1-216-685-11	METAL CHIP 27K 0.5% 1/10W	
R446	1-216-685-11	METAL CHIP 27K 0.5% 1/10W	
R447	1-216-627-11	METAL CHIP 100 0.5% 1/10W	
R448	1-216-627-11	METAL CHIP 100 0.5% 1/10W	
R449	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
R450	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
R451	1-216-295-00	METAL CHIP 0 5% 1/10W	
R452	1-216-295-00	METAL CHIP 0 5% 1/10W	
R455	1-216-295-00	METAL CHIP 0 5% 1/10W	
R456	1-216-295-00	METAL CHIP 0 5% 1/10W	
R465	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R466	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R468	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R469	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R476	1-216-295-00	METAL CHIP 0 5% 1/10W	
R477	1-216-295-00	METAL CHIP 0 5% 1/10W	
R483	1-216-295-00	METAL CHIP 0 5% 1/10W	
R484	1-216-295-00	METAL CHIP 0 5% 1/10W	
R495	1-216-295-00	METAL CHIP 0 5% 1/10W	
R501	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R502	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R503	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R505	1-216-295-00	METAL CHIP 0 5% 1/10W	
R506	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R507	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R508	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R509	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R510	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R511	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R512	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R513	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R515	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R516	1-216-295-00	METAL CHIP 0 5% 1/10W	
R518	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R519	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R520	1-216-295-00	METAL CHIP 0 5% 1/10W	
R524	1-216-295-00	METAL CHIP 0 5% 1/10W	
R525	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R526	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R527	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R528	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R529	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R530	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R531	1-216-295-00	METAL CHIP 0 5% 1/10W	
R532	1-216-077-00	METAL CHIP 15K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R533	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R534	1-216-295-00	METAL CHIP 0 5% 1/10W	
R536	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R537	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R538	1-216-295-00	METAL CHIP 0 5% 1/10W	
R540	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R541	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R542	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R543	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R544	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R545	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R546	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R547	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R548	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R549	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R550	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R551	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R552	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R553	1-216-041-00	METAL CHIP 470 5% 1/10W	
R554	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R555	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R556	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R557	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R558	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R559	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R560	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R561	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R562	1-216-064-00	METAL CHIP 4.3K 5% 1/10W	
R563	1-216-064-00	METAL CHIP 4.3K 5% 1/10W	
R564	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R565	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R566	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R567	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R569	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R570	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R571	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R572	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R573	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R574	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R575	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R584	1-216-295-00	METAL CHIP 0 5% 1/10W	
R586	1-216-295-00	METAL CHIP 0 5% 1/10W	
R587	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R588	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R589	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R590	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R591	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R592	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R593	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R594	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R595	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R596	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R597	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R598	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R650	1-216-295-00	METAL CHIP 0 5% 1/10W	
R651	1-216-651-11	METAL CHIP 1K 0.5% 1/10W	
R653	1-216-295-00	METAL CHIP 0 5% 1/10W	
R654	1-216-651-11	METAL CHIP 1K 0.5% 1/10W	
R656	1-216-643-11	METAL CHIP 470 0.5% 1/10W	
R657	1-216-635-11	METAL CHIP 220 0.5% 1/10W	
R659	1-216-643-11	METAL CHIP 470 0.5% 1/10W	
R660	1-216-635-11	METAL CHIP 220 0.5% 1/10W	
R661	1-216-643-11	METAL CHIP 470 0.5% 1/10W	
R662	1-216-635-11	METAL CHIP 220 0.5% 1/10W	
R663	1-216-643-11	METAL CHIP 470 0.5% 1/10W	
R664	1-216-635-11	METAL CHIP 220 0.5% 1/10W	
R703	1-216-295-00	METAL CHIP 0 5% 1/10W	
R704	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R706	1-216-295-00	METAL CHIP 0 5% 1/10W	
R710	1-216-041-00	METAL CHIP 470 5% 1/10W	
R712	1-216-043-00	METAL CHIP 560 5% 1/10W	
R721	1-216-295-00	METAL CHIP 0 5% 1/10W	
R722	1-216-295-00	METAL CHIP 0 5% 1/10W	
R725	1-216-041-00	METAL CHIP 470 5% 1/10W	
R726	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R727	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R728	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R729	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R730	1-216-295-00	METAL CHIP 0 5% 1/10W	
R732	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R739	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R740	1-216-041-00	METAL CHIP 470 5% 1/10W	
R741	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R748	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R750	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R751	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R752	1-216-043-00	METAL CHIP 560 5% 1/10W	
R753	1-216-637-11	METAL CHIP 270 0.5% 1/10W	
R754	1-216-640-11	METAL CHIP 360 0.5% 1/10W	
R755	1-216-017-00	METAL CHIP 47 5% 1/10W	
R756	1-216-045-00	METAL CHIP 680 5% 1/10W	
R757	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R758	1-216-647-11	METAL CHIP 680 0.5% 1/10W	
R759	1-216-295-00	METAL CHIP 0 5% 1/10W	
R760	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R764	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R765	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R766	1-216-075-00	METAL CHIP 12K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R767	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R768	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R769	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R771	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R772	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R773	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R775	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R776	1-216-295-00	METAL CHIP 0 5% 1/10W	
R777	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R778	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R779	1-216-295-00	METAL CHIP 0 5% 1/10W	
R780	1-216-295-00	METAL CHIP 0 5% 1/10W	
R781	1-216-295-00	METAL CHIP 0 5% 1/10W	
R782	1-216-295-00	METAL CHIP 0 5% 1/10W	
R783	1-216-295-00	METAL CHIP 0 5% 1/10W	
R784	1-216-295-00	METAL CHIP 0 5% 1/10W	
R785	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R786	1-216-043-00	METAL CHIP 560 5% 1/10W	
R787	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R788	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R789	1-216-295-00	METAL CHIP 0 5% 1/10W	
R790	1-216-295-00	METAL CHIP 0 5% 1/10W	
R791	1-216-295-00	METAL CHIP 0 5% 1/10W	
R792	1-216-295-00	METAL CHIP 0 5% 1/10W	
R794	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R795	1-216-295-00	METAL CHIP 0 5% 1/10W	
R796	1-216-041-00	METAL CHIP 470 5% 1/10W	
R797	1-216-295-00	METAL CHIP 0 5% 1/10W	
R800	1-216-295-00	METAL CHIP 0 5% 1/10W	
R801	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R802	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R803	1-216-050-00	METAL GLAZE 1.1K 5% 1/10W	
R804	1-216-295-00	METAL CHIP 0 5% 1/10W	
R806	1-216-295-00	METAL CHIP 0 5% 1/10W	
R807	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R808	1-216-001-00	METAL CHIP 10 5% 1/10W	
R811	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R812	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R813	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R814	1-216-295-00	METAL CHIP 0 5% 1/10W	
R816	1-216-295-00	METAL CHIP 0 5% 1/10W	
R817	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R818	1-216-001-00	METAL CHIP 10 5% 1/10W	
R821	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R822	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R823	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R824	1-216-295-00	METAL CHIP 0 5% 1/10W	
R826	1-216-295-00	METAL CHIP 0 5% 1/10W	
R827	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R828	1-216-001-00	METAL CHIP 10 5% 1/10W	
R832	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R833	1-216-041-00	METAL CHIP 470 5% 1/10W	
R835	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R838	1-216-013-00	METAL CHIP 33 5% 1/10W	
R839	1-216-013-00	METAL CHIP 33 5% 1/10W	
R840	1-216-013-00	METAL CHIP 33 5% 1/10W	
R841	1-216-013-00	METAL CHIP 33 5% 1/10W	
R842	1-216-013-00	METAL CHIP 33 5% 1/10W	
R843	1-216-013-00	METAL CHIP 33 5% 1/10W	
R845	1-216-295-00	METAL CHIP 0 5% 1/10W	
R846	1-216-015-00	METAL CHIP 39 5% 1/10W	
R847	1-216-015-00	METAL CHIP 39 5% 1/10W	
R849	1-216-295-00	METAL CHIP 0 5% 1/10W	
R850	1-216-015-00	METAL CHIP 39 5% 1/10W	
R851	1-216-015-00	METAL CHIP 39 5% 1/10W	
R852	1-216-295-00	METAL CHIP 0 5% 1/10W	
R853	1-216-015-00	METAL CHIP 39 5% 1/10W	
R854	1-216-015-00	METAL CHIP 39 5% 1/10W	
R856	1-216-295-00	METAL CHIP 0 5% 1/10W	
R857	1-216-295-00	METAL CHIP 0 5% 1/10W	
R858	1-216-015-00	METAL CHIP 39 5% 1/10W	
R859	1-216-015-00	METAL CHIP 39 5% 1/10W	
R860	1-216-015-00	METAL CHIP 39 5% 1/10W	
R862	1-216-015-00	METAL CHIP 39 5% 1/10W	
R863	1-216-015-00	METAL CHIP 39 5% 1/10W	
R864	1-216-015-00	METAL CHIP 39 5% 1/10W	
R880	1-216-295-00	METAL CHIP 0 5% 1/10W	
R886	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R888	1-216-295-00	METAL CHIP 0 5% 1/10W	
R890	1-216-295-00	METAL CHIP 0 5% 1/10W	
R891	1-216-295-00	METAL CHIP 0 5% 1/10W	
R892	1-216-295-00	METAL CHIP 0 5% 1/10W	
R898	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R959	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R967	1-216-295-00	METAL CHIP 0 5% 1/10W	
R968	1-216-295-00	METAL CHIP 0 5% 1/10W	
R970	1-216-295-00	METAL CHIP 0 5% 1/10W	
R971	1-216-295-00	METAL CHIP 0 5% 1/10W	
R972	1-216-295-00	METAL CHIP 0 5% 1/10W	
R996	1-216-295-00	METAL CHIP 0 5% 1/10W	
R997	1-216-295-00	METAL CHIP 0 5% 1/10W	
R998	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< MODULATOR >	
⚠RFU801	1-466-989-11	MODULATOR, RF	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV301	1-238-855-11	RES, ADJ, CERMET 4.7K	
RV501	1-238-857-11	RES, ADJ, CERMET 22K	
RV502	1-238-857-11	RES, ADJ, CERMET 22K	
		< THERMISTOR >	
TH001	1-800-200-00	THERMISTOR S-3K	
		< VIBRATOR >	
X001	1-579-367-21	VABRATOR, CRYSTAL (12MHz)	
X002	1-577-116-21	OSCILLATOR, CRYSTAL (16MHz)	
X003	1-579-126-11	VIBRATOR, CERAMIC (12MHz)	
X004	1-567-098-31	VIBRATOR, CRYSTAL (32kHz)	
X701	1-577-178-11	VIBRATOR, CRYSTAL (14.3MHz)	
X702	1-577-165-11	VIBLATOR, CERAMIC (500kHz)	

****

* 1-648-300-11 MD-59 BOARD

****

(Ref.No 4,000 series)

Ref. No.	Part No.	Description	Remark
	3-953-985-01	HOLDER, ST SENSOR	
	3-954-638-01	HOLDER (S), PUSH SWITCH	
	3-954-639-01	HOLDER (T), PUSH SWITCH	
		< CONNECTOR >	
CN001	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN002	1-750-620-11	CONNECTOR (MM8 MD) (ENCODER MODE SW)	
		< DIODE >	
D001	8-719-988-42	DIODE GL453S	
D002	8-719-106-79	DIODE RD13M-B1	
D003	8-719-106-23	DIODE RD7.5M-B2	
D004	8-719-106-23	DIODE RD7.5M-B2	
D005	8-719-106-23	DIODE RD7.5M-B2	
		< HALL ELEMENT >	
H001	1-808-118-11	ELEMENT, HALL HW-300A	
H002	1-808-118-11	ELEMENT, HALL HW-300A	
		< JUMPER RESISTOR >	
JR001	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR002	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR003	1-216-296-91	METAL GLAZE 0 5%	1/8W
		< TRANSFORMER >	
PT001	8-729-907-25	TRANSISTOR PT4850F	
PT002	8-729-907-25	TRANSISTOR PT4850F	

Ref. No.	Part No.	Description	Remark
		< RESISTOR >	
R001	1-216-190-00	METAL GLAZE 470 5%	1/8W
R002	1-216-190-00	METAL GLAZE 470 5%	1/8W
R003	1-216-190-00	METAL GLAZE 470 5%	1/8W
R004	1-216-190-00	METAL GLAZE 470 5%	1/8W
R005	1-216-296-91	METAL GLAZE 0 5%	1/8W
		< SWITCH >	
S001	1-692-497-11	SWICH, PUSH (TAPE 8/9)	
S002	1-692-497-11	SWICH, PUSH (TAPE 10/13)	
S003	1-692-497-11	SWICH, PUSH (ME/MD)	
S004	1-692-497-11	SWICH, PUSH (Hi8 MP)	
S005	1-692-497-11	SWICH, PUSH (REC PROOF)	
S006	1-570-953-11	SWITCH, PUSH (1 KEY) (CC DOWN)	

****

* A-7066-070-A PC-61 (H) BOARD, COMPLETE

****

(Ref.No 4,000 series)

Ref. No.	Part No.	Description	Remark
		< CAPACITOR >	
C601	1-124-983-11	ELECT 330uF 20%	6.3V
C602	1-124-983-11	ELECT 330uF 20%	6.3V
C603	1-126-022-11	ELECT 47uF 20%	10V
C604	1-126-022-11	ELECT 47uF 20%	10V
C605	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C606	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C633	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C634	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C635	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C636	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C640	1-126-233-11	ELECT 22uF 20%	50V
C642	1-124-126-00	ELECT 47uF 20%	10V
C643	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C644	1-163-101-00	CERAMIC CHIP 22PF 5%	50V
C645	1-163-124-00	CERAMIC CHIP 200PF 5%	50V
C646	1-124-925-11	ELECT 2.2uF 20%	100V
C647	1-124-464-11	ELECT 0.22uF 20%	50V
C648	1-131-377-00	TANTALUM 10uF 10%	10V
C649	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V
C650	1-124-927-11	ELECT 4.7uF 20%	100V
C651	1-126-022-11	ELECT 47uF 20%	10V
C654	1-126-233-11	ELECT 22uF 20%	50V
C657	1-124-126-00	ELECT 47uF 20%	10V
C658	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C659	1-163-101-00	CERAMIC CHIP 22PF 5%	50V
C660	1-163-124-00	CERAMIC CHIP 200PF 5%	50V
C661	1-124-925-11	ELECT 2.2uF 20%	100V
C662	1-124-464-11	ELECT 0.22uF 20%	50V

Ref. No.	Part No.	Description			Remark
C663	1-131-377-00	TANTALUM	10uF	10%	10V
C664	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C665	1-124-927-11	ELECT	4.7uF	20%	100V
C666	1-126-022-11	ELECT	47uF	20%	10V
C671	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C672	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C702	1-126-049-11	ELECT	22uF	20%	25V
C703	1-126-049-11	ELECT	22uF	20%	25V
C705	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C706	1-124-638-11	ELECT	22uF	20%	10V
C707	1-124-638-11	ELECT	22uF	20%	10V
C708	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C714	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C715	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C716	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C717	1-124-638-11	ELECT	22uF	20%	10V
C718	1-126-049-11	ELECT	22uF	20%	25V
C719	1-126-049-11	ELECT	22uF	20%	25V
C731	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C733	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C734	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C735	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C736	1-124-638-11	ELECT	22uF	20%	10V
C737	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C738	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C739	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C740	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C741	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C742	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C743	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C744	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C745	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C746	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C747	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C748	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C748	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C749	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C750	1-124-638-11	ELECT	22uF	20%	10V
C752	1-126-157-11	ELECT	10uF	20%	16V
C755	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C756	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C757	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V
C758	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C759	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C760	1-163-091-00	CERAMIC CHIP	8PF		50V
C761	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C761	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C762	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C763	1-162-851-11	CERAMIC	0.1uF	10%	16V

Ref. No.	Part No.	Description			Remark
C764	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C765	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C766	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C768	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C769	1-126-177-11	ELECT	100uF	20%	10V
C771	1-126-154-11	ELECT	47uF	20%	6.3V
C772	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C773	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C774	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C776	1-163-031-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

CN601	1-573-824-11	CONNECTOR, BOARD TO BOARD 10P
CN701	1-764-054-11	CONNECTOR, BOARD TO BOARD 40P
CN702	1-506-484-11	PIN, CONNECTOR 5P
CN703	1-506-482-11	PIN, CONNECTOR 3P

< VARIABLE CAPACITOR >

CV701	1-141-227-00	CAP, TRIMMER 20PF

< DIODE >

D702	8-719-400-18	DIODE	MA152WK
D703	8-713-300-88	DIODE	1T33C-01

< FERRITE BEAD >

FB701	1-543-256-11	BEAD, FERRITE

< FILTER >

FL601	1-236-043-11	FILTER, LOW PASS
FL602	1-236-043-11	FILTER, LOW PASS

< IC >

IC601	8-759-300-71	IC	HD14053BFP
IC602	8-759-300-71	IC	HD14053BFP
IC603	8-759-924-46	IC	BA4560F
IC610	8-759-009-06	IC	MC14052BF
IC614	8-759-822-92	IC	LA7451M
IC701	8-752-322-57	IC	CXD1077M
IC703	8-752-332-46	IC	CXD1208Q
IC704	8-759-009-51	IC	MC14538BF
IC705	8-759-507-53	IC	MS6264CLL-15FC
IC707	8-759-067-53	IC	CXD2120Q
IC708	8-752-010-20	IC	CX20102
IC709	8-759-908-15	IC	TL431CLP

Ref. No.	Part No.	Description	Remark
		< COIL >	
L704	1-408-982-11	INDUCTOR 100uH	
L705	1-408-982-11	INDUCTOR 100uH	
L706	1-408-970-21	INDUCTOR 10uH	
L707	1-408-958-21	INDUCTOR 1uH	
L708	1-412-006-31	INDUCTOR CHIP 10uH	
L753	1-216-295-00	METAL CHIP 0 5%	1/10W
L756	1-410-997-31	INDUCTOR CHIP 2.2uH	
L757	1-216-295-00	METAL CHIP 0 5%	1/10W
L758	1-216-295-00	METAL CHIP 0 5%	1/10W
L759	1-216-295-00	METAL CHIP 0 5%	1/10W
L760	1-410-997-31	INDUCTOR CHIP 2.2uH	
L761	1-410-997-31	INDUCTOR CHIP 2.2uH	
L762	1-410-997-31	INDUCTOR CHIP 2.2uH	
L763	1-410-997-31	INDUCTOR CHIP 2.2uH	
L764	1-216-295-00	METAL CHIP 0 5%	1/10W
L766	1-216-295-00	METAL CHIP 0 5%	1/10W
L767	1-216-295-00	METAL CHIP 0 5%	1/10W
L774	1-216-295-00	METAL CHIP 0 5%	1/10W
L775	1-216-295-00	METAL CHIP 0 5%	1/10W
L776	1-216-295-00	METAL CHIP 0 5%	1/10W
L777	1-216-295-00	METAL CHIP 0 5%	1/10W
L778	1-216-295-00	METAL CHIP 0 5%	1/10W
L779	1-216-295-00	METAL CHIP 0 5%	1/10W
L780	1-410-997-31	INDUCTOR CHIP 2.2uH	
L781	1-216-295-00	METAL CHIP 0 5%	1/10W
L784	1-216-295-00	METAL CHIP 0 5%	1/10W
L785	1-216-295-00	METAL CHIP 0 5%	1/10W
L786	1-216-295-00	METAL CHIP 0 5%	1/10W
		< TRANSISTOR >	
Q703	8-729-402-19	TRANSISTOR XN6501	
Q704	8-729-421-19	TRANSISTOR UN2213	
Q705	8-729-402-19	TRANSISTOR XN6501	
Q706	8-729-010-25	TRANSISTOR MSD601-RT1	
Q708	8-729-901-06	TRANSISTOR DTA144EK	
Q711	8-729-421-19	TRANSISTOR UN2213	
		< RESISTOR >	
R601	1-216-679-11	METAL CHIP 15K 0.5%	1/10W
R602	1-216-679-11	METAL CHIP 15K 0.5%	1/10W
R603	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R604	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R605	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R606	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R607	1-216-683-11	METAL CHIP 22K 0.5%	1/10W
R608	1-216-683-11	METAL CHIP 22K 0.5%	1/10W
R609	1-216-651-11	METAL CHIP 1K 0.5%	1/10W

Ref. No.	Part No.	Description	Remark
R610	1-216-651-11	METAL CHIP 1K 0.5%	1/10W
R611	1-216-651-11	METAL CHIP 1K 0.5%	1/10W
R612	1-216-651-11	METAL CHIP 1K 0.5%	1/10W
R639	1-216-295-00	METAL CHIP 0 5%	1/10W
R641	1-216-663-11	METAL CHIP 3.3K 0.5%	1/10W
R642	1-216-663-11	METAL CHIP 3.3K 0.5%	1/10W
R645	1-216-665-11	METAL CHIP 3.9K 0.5%	1/10W
R646	1-216-665-11	METAL CHIP 3.9K 0.5%	1/10W
R647	1-216-678-11	METAL CHIP 13K 0.5%	1/10W
R648	1-216-678-11	METAL CHIP 13K 0.5%	1/10W
R651	1-218-754-11	METAL GLAZE 120K 2%	1/10W
R655	1-216-651-11	METAL CHIP 1K 0.5%	1/10W
R656	1-216-651-11	METAL CHIP 1K 0.5%	1/10W
R657	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R658	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R659	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R660	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R661	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R662	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R663	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R664	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R665	1-216-627-11	METAL CHIP 100 0.5%	1/10W
R666	1-216-627-11	METAL CHIP 100 0.5%	1/10W
R701	1-216-029-00	METAL CHIP 150 5%	1/10W
R702	1-216-653-11	METAL CHIP 1.2K 0.5%	1/10W
R703	1-216-661-11	METAL CHIP 2.7K 0.5%	1/10W
R704	1-216-022-00	METAL CHIP 75 5%	1/10W
R705	1-216-039-00	METAL CHIP 390 5%	1/10W
R706	1-216-651-11	METAL CHIP 1K 0.5%	1/10W
R707	1-216-077-00	METAL CHIP 15K 5%	1/10W
R708	1-216-689-11	METAL CHIP 39K 0.5%	1/10W
R712	1-216-077-00	METAL CHIP 15K 5%	1/10W
R713	1-216-689-11	METAL CHIP 39K 0.5%	1/10W
R717	1-216-117-00	METAL CHIP 680K 5%	1/10W
R718	1-216-105-00	METAL CHIP 220K 5%	1/10W
R720	1-216-073-00	METAL CHIP 10K 5%	1/10W
R721	1-216-101-00	METAL CHIP 150K 5%	1/10W
R723	1-216-097-00	METAL CHIP 100K 5%	1/10W
R726	1-216-073-00	METAL CHIP 10K 5%	1/10W
R727	1-216-651-11	METAL CHIP 1K 0.5%	1/10W
R728	1-216-295-00	METAL CHIP 0 5%	1/10W
R738	1-216-017-00	METAL CHIP 47 5%	1/10W
R739	1-216-645-11	METAL CHIP 560 0.5%	1/10W
R740	1-216-051-00	METAL CHIP 1.2K 5%	1/10W
R743	1-216-073-00	METAL CHIP 10K 5%	1/10W
R746	1-216-651-11	METAL CHIP 1K 0.5%	1/10W
R747	1-216-073-00	METAL CHIP 10K 5%	1/10W
R748	1-216-073-00	METAL CHIP 10K 5%	1/10W
R749	1-216-651-11	METAL CHIP 1K 0.5%	1/10W

Ref. No.	Part No.	Description			Remark
R750	1-216-073-00	METAL CHIP	10K	5%	1/10W
R751	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R752	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R753	1-216-081-00	METAL CHIP	22K	5%	1/10W
R754	1-216-073-00	METAL CHIP	10K	5%	1/10W
R755	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R756	1-216-627-11	METAL CHIP	100	0.5%	1/10W
R757	1-216-037-00	METAL CHIP	330	5%	1/10W
R758	1-216-029-00	METAL CHIP	150	5%	1/10W
R759	1-216-045-00	METAL CHIP	680	5%	1/10W
R760	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R761	1-216-077-00	METAL CHIP	15K	5%	1/10W
R762	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R763	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R764	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R767	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R772	1-216-097-00	METAL CHIP	100K	5%	1/10W
R777	1-216-295-00	METAL CHIP	0	5%	1/10W
R778	1-216-295-00	METAL CHIP	0	5%	1/10W
R780	1-216-045-00	METAL CHIP	680	5%	1/10W
R789	1-216-105-00	METAL CHIP	220K	5%	1/10W
R790	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R791	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R794	1-216-097-00	METAL CHIP	100K	5%	1/10W
R797	1-216-097-00	METAL CHIP	100K	5%	1/10W
R798	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R799	1-216-029-00	METAL CHIP	150	5%	1/10W

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description
RV701	1-238-857-11	RES, ADJ, CERMET 22K
RV702	1-238-857-11	RES, ADJ, CERMET 22K
RV703	1-238-861-11	RES, ADJ, CERMET 470K
RV705	1-238-861-11	RES, ADJ, CERMET 470K

****

* A-7063-991-A PS-313 (H) BOARD, COMPLETE

****

(Ref.No 8,000 series)

Ref. No.	Part No.	Description
	1-251-135-11	INLET, AC.
	1-533-183-11	HOLDER, FUSE
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3
	7-685-646-81	SCREW +BVTP 3X8 TYPE2
	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
⚠C001	1-137-524-11	FILM	0.22uF	20%	250V
⚠C002	1-161-741-00	CERAMIC	0.001uF	10%	400V
⚠C003	1-161-741-00	CERAMIC	0.001uF	10%	400V
C007	1-107-524-11	ELECT	470uF	20%	200V
⚠C008	1-161-741-00	CERAMIC	0.001uF	10%	400V
C011	1-136-208-11	FILM	0.068uF	10%	400V
C012	1-128-069-11	ELECT	56uF	20%	35V
C013	1-104-331-11	CERAMIC	0.0022uF	10%	1KV
C014	1-130-475-00	MYLAR	0.0022uF	5%	50V
C015	1-126-933-11	ELECT	100uF	20%	10V
C016	1-130-467-00	MYLAR	470PF	5%	50V
C017	1-126-964-11	ELECT	10uF	20%	50V
C018	1-136-163-00	MYLAR	0.068uF	10%	50V
C019	1-136-165-00	MYLAR	0.1uF	10%	50V
C020	1-128-449-11	ELECT	0.001F	20%	10V
C021	1-128-496-11	ELECT	470uF	20%	10V
C022	1-128-246-11	ELECT	2700uF	20%	10V
C024	1-128-449-11	ELECT	0.001F	20%	10V
C025	1-126-964-11	ELECT	10uF	20%	50V
C026	1-126-589-11	ELECT	2200uF	20%	16V
C027	1-126-183-11	ELECT	1000uF	20%	16V
C042	1-130-467-00	MYLAR	470PF	5%	50V

< CONNECTOR >

Ref. No.	Part No.	Description
* CN002	1-560-897-00	PIN, CONNECTOR 9P
* CN003	1-560-900-00	PIN, CONNECTOR 12P

< DIODE >

Ref. No.	Part No.	Description	
⚠D001	8-719-510-14	DIODE	S2VB60
D002	8-719-302-98	DIODE	RG4C
D003	8-719-313-17	DIODE	AU02A-V0
D004	8-719-313-17	DIODE	AU02A-V0
D005	8-719-313-17	DIODE	AU02A-V0
D006	8-719-911-19	DIODE	1SS119
D007	8-719-043-76	DIODE	AK04V0
D010	8-719-043-76	DIODE	AK04V0
D011	8-719-109-89	DIODE	RD5.6ESB2
D012	8-719-043-71	DIODE	FMB-24
D013	8-719-043-71	DIODE	FMB-24

< FUSE >

Ref. No.	Part No.	Description
⚠F001	1-532-743-11	FUSE, GLASS TUBE
⚠F002	1-532-779-11	FUSE, MICRO (SECONDARY)

< IC >

Ref. No.	Part No.	Description	
⚠IC001	8-759-176-86	IC	STR-M6551
⚠IC002	8-719-902-56	IC	PC817
IC003	8-759-908-15	IC	TL431CLP
IC004	8-759-908-15	IC	TL431CLP
IC005	8-759-069-28	IC	PQ05RF11

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description				Remark
		< COIL >				
⚠L002	1-406-912-11	COIL, LINE FILTER				
L003	1-412-525-31	INDUCTOR 10uH				
L004	1-412-525-31	INDUCTOR 10uH				
L006	1-412-533-21	INDUCTOR 47uH				
		< TRANSISTOR >				
Q001	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q003	8-729-140-93	TRANSISTOR	2SB733-34			
Q004	8-729-119-76	TRANSISTOR	2SA1175-HFE			
Q005	8-729-801-93	TRANSISTOR	2SD1387-3			
		< RESISTOR >				
⚠R001	1-202-729-00	SOLID	6.8M	10%	1/2W	
R002	1-260-123-11	CARBON	100K	5%	1/2W	
R004	1-249-415-11	CARBON	680	5%	1/4W	F
R005	1-249-426-11	CARBON	5.6K	5%	1/4W	
R006	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R007	1-249-417-11	CARBON	1K	5%	1/4W	F
R008	1-249-417-11	CARBON	1K	5%	1/4W	F
R009	1-216-387-11	WIREWOUND	0.68	10%	2W	F
R010	1-249-435-11	CARBON	33K	5%	1/4W	
R011	1-249-441-11	CARBON	100K	5%	1/4W	
R012	1-249-431-11	CARBON	15K	5%	1/4W	
R014	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R015	1-249-402-11	CARBON	56	5%	1/4W	F
R016	1-249-417-11	CARBON	1K	5%	1/4W	F
R017	1-215-431-00	METAL	2.7K	1%	1/6W	
R018	1-215-413-00	METAL	470	1%	1/6W	
R019	1-215-429-00	METAL	2.2K	1%	1/6W	
R021	1-219-162-11	FUSIBLE	3.3	5%	1/4W	F
R022	1-215-863-11	METAL OXIDE	100	5%	1W	F
R023	1-249-404-00	CARBON	82	5%	1/4W	
R024	1-215-429-00	METAL	2.2K	1%	1/6W	
R025	1-215-429-00	METAL	2.2K	1%	1/6W	
R026	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R027	1-247-706-11	CARBON	330	5%	1/4W	F
R028	1-249-429-11	CARBON	10K	5%	1/4W	
R047	1-249-393-11	CARBON	10	5%	1/4W	F
R048	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R061	1-249-415-11	CARBON	680	5%	1/4W	F
R063	1-215-928-11	METAL OXIDE	68K	5%	3W	F
R064	1-215-928-11	METAL OXIDE	68K	5%	3W	F
R090	1-217-782-11	FUSIBLE	3.3	5%	5W	F
		< TRANSFORMER >				
⚠T001	1-423-844-11	TRANSFORMER, CONVERTER				

****

Ref. No.	Part No.	Description			Remark
*	A-7063-758-A	RP-165 BOARD, COMPLETE ********************** (Ref. No 1,000 series)			
*	3-955-621-01	CASE (MAIN), SHIELD, RP			
		< CAPACITOR >			
C001	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C002	1-163-224-11	CERAMIC CHIP	7PF	0.25PF	50V
C003	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C004	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C005	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C006	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C007	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C008	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C009	1-163-091-00	CERAMIC CHIP	8PF		50V
C010	1-126-157-11	ELECT	10uF	20%	16V
C011	1-164-634-11	CERAMIC CHIP	1uF		16V
C012	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C013	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C014	1-164-634-11	CERAMIC CHIP	1uF		16V
C015	1-126-157-11	ELECT	10uF	20%	16V
C016	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C017	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C018	1-124-234-00	ELECT	22uF	20%	16V
C019	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C020	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C021	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C022	1-163-224-11	CERAMIC CHIP	7PF	0.25PF	50V
C023	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C024	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C025	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C026	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C027	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C028	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C029	1-163-224-11	CERAMIC CHIP	7PF	0.25PF	50V
C030	1-126-154-11	ELECT	47uF	20%	6.3V
C031	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C032	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C033	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C034	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C035	1-126-157-11	ELECT	10uF	20%	16V
C036	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C037	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C038	1-126-157-11	ELECT	10uF	20%	16V
C039	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C040	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C041	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C042	1-126-157-11	ELECT	10uF	20%	16V

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
C043	1-127-558-11	ELECT(SOLID)	10uF	20%	10V
C044	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C054	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C055	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C056	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C057	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C059	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C060	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C061	1-162-587-11	CERAMIC CHIP	0.039uF	10%	25V
C062	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C063	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C064	1-163-031-11	CERAMIC CHIP	0.01uF		50V
		< CONNECTOR >			
CN001	1-506-487-11	PIN, CONNECTOR 8P			
CN002	1-691-053-21	HOUSING, CONNECTOR 21P			
CN003	1-566-545-41	CONNECTOR, FPC (NON ZIF) 13P			
		< DIODE >			
D001	8-719-404-46	DIODE	MA110		
D002	8-719-404-46	DIODE	MA110		
D003	8-719-404-46	DIODE	MA110		
D004	8-719-404-46	DIODE	MA110		
		< IC >			
IC001	8-752-003-44	IC	CX20034		
		< COIL >			
L001	1-408-948-00	INDUCTOR	220uH		
L002	1-408-973-21	INDUCTOR	18uH		
L003	1-408-982-11	INDUCTOR	100uH		
L004	1-408-974-21	INDUCTOR	22uH		
L006	1-408-973-21	INDUCTOR	18uH		
L009	1-408-970-21	INDUCTOR	10uH		
		< TRANSISTOR >			
Q001	8-729-102-07	TRANSISTOR	2SC2223-F13		
Q002	8-729-102-07	TRANSISTOR	2SC2223-F13		
Q003	8-729-421-19	TRANSISTOR	UN2213		
Q004	8-729-420-12	TRANSISTOR	XN4213		
Q006	8-729-010-05	TRANSISTOR	MSB709-RT1		
Q007	8-729-010-05	TRANSISTOR	MSB709-RT1		
Q008	8-729-010-05	TRANSISTOR	MSB709-RT1		
Q009	8-729-402-84	TRANSISTOR	XN4601		
Q010	8-729-010-25	TRANSISTOR	MSD601-RT1		
Q011	8-729-420-20	TRANSISTOR	XN4312		
Q017	8-729-010-25	TRANSISTOR	MSD601-RT1		
Q018	8-729-010-25	TRANSISTOR	MSD601-RT1		

Ref. No.	Part No.	Description			Remark
Q020	8-729-421-19	TRANSISTOR	UN2213		
		< RESISTOR >			
R001	1-216-077-00	METAL CHIP	15K	5%	1/10W
R002	1-216-079-00	METAL CHIP	18K	5%	1/10W
R003	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R004	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R005	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R006	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R007	1-216-081-00	METAL CHIP	22K	5%	1/10W
R008	1-216-073-00	METAL CHIP	10K	5%	1/10W
R009	1-216-001-00	METAL CHIP	10	5%	1/10W
R010	1-216-031-00	METAL CHIP	180	5%	1/10W
R011	1-216-077-00	METAL CHIP	15K	5%	1/10W
R012	1-216-079-00	METAL CHIP	18K	5%	1/10W
R013	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R014	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R015	1-216-085-00	METAL CHIP	33K	5%	1/10W
R016	1-216-085-00	METAL CHIP	33K	5%	1/10W
R017	1-216-081-00	METAL CHIP	22K	5%	1/10W
R018	1-216-073-00	METAL CHIP	10K	5%	1/10W
R019	1-216-001-00	METAL CHIP	10	5%	1/10W
R020	1-216-031-00	METAL CHIP	180	5%	1/10W
R021	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R022	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R023	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R024	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R025	1-216-683-11	METAL CHIP	22K	0.5%	1/10W
R026	1-216-686-11	METAL CHIP	30K	0.5%	1/10W
R028	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R029	1-216-073-00	METAL CHIP	10K	5%	1/10W
R040	1-216-081-00	METAL CHIP	22K	5%	1/10W
R041	1-216-085-00	METAL CHIP	33K	5%	1/10W
R042	1-216-035-00	METAL CHIP	270	5%	1/10W
R043	1-216-033-00	METAL CHIP	220	5%	1/10W
R044	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R045	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R046	1-216-021-00	METAL CHIP	68	5%	1/10W
R047	1-216-017-00	METAL CHIP	47	5%	1/10W
R048	1-216-043-00	METAL CHIP	560	5%	1/10W
R049	1-216-086-00	METAL GLAZE	36K	5%	1/10W
R050	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R051	1-216-072-00	METAL CHIP	9.1K	5%	1/10W
R052	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R053	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R054	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R055	1-216-048-00	METAL CHIP	910	5%	1/10W
R056	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R057	1-216-025-00	METAL CHIP	100	5%	1/10W
R058	1-216-025-00	METAL CHIP	100	5%	1/10W
R064	1-216-025-00	METAL CHIP	100	5%	1/10W
R067	1-216-025-00	METAL CHIP	100	5%	1/10W
R070	1-216-295-00	METAL CHIP	0	5%	1/10W
R071	1-216-295-00	METAL CHIP	0	5%	1/10W
R072	1-216-039-00	METAL CHIP	390	5%	1/10W
R073	1-216-021-00	METAL CHIP	68	5%	1/10W
R074	1-216-049-00	METAL CHIP	1K	5%	1/10W
R075	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R076	1-216-025-00	METAL CHIP	100	5%	1/10W
R090	1-216-687-11	METAL CHIP	33K	0.5%	1/10W

< VARIABLE RESISTOR >

RV001	1-230-720-11	RES, ADJ, CARBON	4.7K		
RV002	1-230-720-11	RES, ADJ, CARBON	4.7K		

****

* 1-650-413-11 SW-227 BOARD

****

(Ref.No 7,000 series)

< CONNECTOR >

CN601	1-564-013-11	PIN, CONNECTOR 3P			

< SWITCH >

S601	1-571-300-21	SWITCH, ROTARY			

****

* A-7063-759-A TK-26 BOARD, COMPLETE

****

(Ref.No 7,000 series)

< BUZZER >

BZ501	1-529-080-11	BUZZER, PIEZOELECTRIC			

< CAPACITOR >

C501	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C502	1-124-589-11	ELECT	47uF	20%	16V
C503	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C504	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C505	1-104-905-11	CAP, DOUBLE LAYERS	0.22F		

< CONNECTOR >

* CN501	1-691-059-21	HOUSING, CONNECTOR 27P			
* CN502	1-691-059-21	HOUSING, CONNECTOR 27P			
CN503	1-691-084-21	HOUSING, CONNECTOR 25P			
CN504	1-691-084-21	HOUSING, CONNECTOR 25P			
CN507	1-506-482-11	PIN, CONNECTOR 3P			
CN508	1-506-481-11	PIN, CONNECTOR 2P			

< DIODE >

D503	8-719-106-16	DIODE RD6.8M-B1			

< IC >

IC501	8-759-973-95	IC BA6219B			

< JUMPER RESISTOR >

JR502	1-216-295-00	METAL CHIP	0	5%	1/10W
JR503	1-216-295-00	METAL CHIP	0	5%	1/10W
JR504	1-216-296-91	METAL GLAZE	0	5%	1/8W

< RESISTOR >

R501	1-216-295-00	METAL CHIP	0	5%	1/10W
R505	1-216-013-00	METAL CHIP	33	5%	1/10W
R506	1-216-013-00	METAL CHIP	33	5%	1/10W
R507	1-216-013-00	METAL CHIP	33	5%	1/10W
R508	1-216-013-00	METAL CHIP	33	5%	1/10W
R509	1-216-017-00	METAL CHIP	47	5%	1/10W
R511	1-216-295-00	METAL CHIP	0	5%	1/10W
R512	1-216-295-00	METAL CHIP	0	5%	1/10W
R519	1-216-295-00	METAL CHIP	0	5%	1/10W

****

* TM-119 BOARD (Supplied with M904)

****

(Ref.No 7,000 series)

< CONNECTOR >

CN001	1-506-481-11	PIN, CONNECTOR 2P			

****

Ref. No.	Part No.	Description	Remark
*	A-7063-989-A	TU-145 (H) BOARD, COMPLETE ************************* (Ref.No 5,000 series)	
	1-555-110-00	CABLE, PIN	
	1-751-603-11	CABLE, FLAT (FMT-1)	
		< CAPACITOR >	
C251	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V
C252	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C253	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C254	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C255	1-124-257-00	ELECT 2.2uF 20%	50V
C912	1-124-477-11	ELECT 47uF 20%	25V
C916	1-124-477-11	ELECT 47uF 20%	25V
C918	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V
C920	1-124-927-11	ELECT 4.7uF 20%	100V
C934	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C935	1-124-477-11	ELECT 47uF 20%	25V
C936	1-126-962-11	ELECT 3.3uF 20%	50V
C937	1-126-962-11	ELECT 3.3uF 20%	50V
C938	1-126-962-11	ELECT 3.3uF 20%	50V
C942	1-126-301-11	ELECT 1uF 20%	50V
C943	1-104-792-51	ELECT 33uF 20%	16V
C945	1-126-301-11	ELECT 1uF 20%	50V
C947	1-124-477-11	ELECT 47uF 20%	25V
C948	1-124-257-00	ELECT 2.2uF 20%	50V
C950	1-124-927-11	ELECT 4.7uF 20%	100V
C951	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C952	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C953	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C954	1-163-031-11	CERAMIC CHIP 0.01uF	50V
		< CONNECTOR >	
* CN901	1-691-059-21	HOUSING, CONNECTOR 27P	
		< DIODE >	
D251	8-719-801-48	DIODE 1SS193	
D901	8-719-043-11	DIODE MA3330-L-TX	
		< IC >	
IC902	8-759-182-88	IC PQ09TZ5U	
IC903	8-759-182-86	IC PQ05TZ5U	
		< COIL >	
L901	1-408-970-21	INDUCTOR 10uH	
L902	1-408-982-11	INDUCTOR 100uH	
L906	1-408-982-11	INDUCTOR 100uH	

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q251	8-729-421-22	TRANSISTOR UN2211	
Q253	8-729-010-05	TRANSISTOR MSB709-RT1	
Q254	8-729-010-25	TRANSISTOR MSD601-RT1	
Q901	8-729-422-29	TRANSISTOR 2SD601A-S	
Q902	8-729-010-25	TRANSISTOR MSD601-RT1	
Q903	8-729-010-25	TRANSISTOR MSD601-RT1	
Q905	8-729-421-22	TRANSISTOR UN2211	
		< RESISTOR >	
R252	1-216-029-00	METAL CHIP 150 5%	1/10W
R253	1-216-295-00	METAL CHIP 0 5%	1/10W
R254	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R255	1-216-121-00	METAL CHIP 1M 5%	1/10W
R256	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R257	1-216-059-00	METAL CHIP 2.7K 5%	1/10W
R258	1-216-063-00	METAL CHIP 3.9K 5%	1/10W
R259	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R262	1-216-295-00	METAL CHIP 0 5%	1/10W
R265	1-216-073-00	METAL CHIP 10K 5%	1/10W
R282	1-216-085-00	METAL CHIP 33K 5%	1/10W
R287	1-216-295-00	METAL CHIP 0 5%	1/10W
R290	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R901	1-216-295-00	METAL CHIP 0 5%	1/10W
R906	1-216-295-00	METAL CHIP 0 5%	1/10W
R907	1-216-025-00	METAL CHIP 100 5%	1/10W
R908	1-216-025-00	METAL CHIP 100 5%	1/10W
R909	1-216-025-00	METAL CHIP 100 5%	1/10W
R910	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R911	1-216-075-00	METAL CHIP 12K 5%	1/10W
R912	1-216-071-00	METAL CHIP 8.2K 5%	1/10W
R913	1-216-049-00	METAL CHIP 1K 5%	1/10W
R914	1-216-093-00	METAL CHIP 68K 5%	1/10W
R916	1-216-025-00	METAL CHIP 100 5%	1/10W
R918	1-216-039-00	METAL CHIP 390 5%	1/10W
R919	1-216-041-00	METAL CHIP 470 5%	1/10W
R921	1-216-295-00	METAL CHIP 0 5%	1/10W
R933	1-216-081-00	METAL CHIP 22K 5%	1/10W
R934	1-216-081-00	METAL CHIP 22K 5%	1/10W
R935	1-216-049-00	METAL CHIP 1K 5%	1/10W
R936	1-216-049-00	METAL CHIP 1K 5%	1/10W
R937	1-216-295-00	METAL CHIP 0 5%	1/10W
R938	1-216-049-00	METAL CHIP 1K 5%	1/10W
R940	1-216-295-00	METAL CHIP 0 5%	1/10W
R941	1-216-295-00	METAL CHIP 0 5%	1/10W
R943	1-216-081-00	METAL CHIP 22K 5%	1/10W
R944	1-216-049-00	METAL CHIP 1K 5%	1/10W

Ref. No.	Part No.	Description			Remark
R945	1-216-295-00	METAL CHIP	0	5%	1/10W
R946	1-216-295-00	METAL CHIP	0	5%	1/10W
R947	1-216-295-00	METAL CHIP	0	5%	1/10W
R948	1-216-295-00	METAL CHIP	0	5%	1/10W
R949	1-216-295-00	METAL CHIP	0	5%	1/10W
R950	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R951	1-216-295-00	METAL CHIP	0	5%	1/10W
R953	1-216-295-00	METAL CHIP	0	5%	1/10W
R954	1-216-295-00	METAL CHIP	0	5%	1/10W
R956	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R958	1-216-295-00	METAL CHIP	0	5%	1/10W
		< TUNER >			
⚠TU902	8-598-254-00	TUNER BTF-WA402			

****

* A-7063-986-A VI-121 (H) BOARD, COMPLETE

****

(Ref.No 2,000 series)

1-751-606-11 CABLE, FLAT (FVF-2)

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C066	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C100	1-126-154-11	ELECT	47uF	20%	6.3V
C101	1-124-443-00	ELECT	100uF	20%	10V
C102	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C103	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C104	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C106	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C107	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C108	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C109	1-126-154-11	ELECT	47uF	20%	6.3V
C110	1-126-176-11	ELECT	220uF	20%	10V
C111	1-126-154-11	ELECT	47uF	20%	6.3V
C112	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C113	1-126-154-11	ELECT	47uF	20%	6.3V
C114	1-124-638-11	ELECT	22uF	20%	10V
C115	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C116	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C117	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C118	1-126-154-11	ELECT	47uF	20%	6.3V
C119	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C122	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C123	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C124	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C125	1-126-154-11	ELECT	47uF	20%	6.3V
C126	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C127	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C128	1-126-154-11	ELECT	47uF	20%	6.3V
C129	1-126-154-11	ELECT	47uF	20%	6.3V
C130	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C131	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C132	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C133	1-126-157-11	ELECT	10uF	20%	16V
C134	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C135	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C136	1-126-154-11	ELECT	47uF	20%	6.3V
C137	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C138	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C139	1-126-154-11	ELECT	47uF	20%	6.3V
C140	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C141	1-126-154-11	ELECT	47uF	20%	6.3V
C142	1-126-154-11	ELECT	47uF	20%	6.3V
C143	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C144	1-126-154-11	ELECT	47uF	20%	6.3V
C145	1-126-154-11	ELECT	47uF	20%	6.3V
C147	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C149	1-126-154-11	ELECT	47uF	20%	6.3V
C150	1-126-154-11	ELECT	47uF	20%	6.3V
C151	1-126-157-11	ELECT	10uF	20%	16V
C153	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C154	1-163-245-11	CERAMIC CHIP	56PF	5%	50V
C155	1-124-638-11	ELECT	22uF	20%	10V
C156	1-126-157-11	ELECT	10uF	20%	16V
C157	1-126-154-11	ELECT	47uF	20%	6.3V
C158	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C159	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C160	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C161	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C162	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C163	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C164	1-126-154-11	ELECT	47uF	20%	6.3V
C165	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C166	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C167	1-126-157-11	ELECT	10uF	20%	16V
C168	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C169	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C170	1-126-154-11	ELECT	47uF	20%	6.3V
C171	1-126-154-11	ELECT	47uF	20%	6.3V
C172	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C173	1-126-154-11	ELECT	47uF	20%	6.3V
C174	1-126-157-11	ELECT	10uF	20%	16V
C175	1-124-902-00	ELECT	0.47uF	20%	50V
C176	1-126-157-11	ELECT	10uF	20%	16V
C177	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C178	1-126-154-11	ELECT	47uF	20%	6.3V
C179	1-126-157-11	ELECT	10uF	20%	16V

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
C180	1-126-162-11	ELECT	3.3uF	20%	50V
C181	1-126-301-11	ELECT	1uF	20%	50V
C182	1-126-154-11	ELECT	47uF	20%	6.3V
C183	1-126-154-11	ELECT	47uF	20%	6.3V
C184	1-124-472-11	ELECT	470uF	20%	10V
C185	1-124-464-11	ELECT	0.22uF	20%	50V
C186	1-126-154-11	ELECT	47uF	20%	6.3V
C187	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C188	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C189	1-126-154-11	ELECT	47uF	20%	6.3V
C190	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C191	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C192	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C193	1-124-903-11	ELECT	1uF	20%	50V
C194	1-124-254-00	ELECT	0.68uF	20%	50V
C195	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C196	1-124-903-11	ELECT	1uF	20%	50V
C198	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C199	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C200	1-126-154-11	ELECT	47uF	20%	6.3V
C201	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C202	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C203	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C204	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C205	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C206	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C207	1-126-157-11	ELECT	10uF	20%	16V
C208	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C209	1-126-157-11	ELECT	10uF	20%	16V
C210	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C212	1-126-154-11	ELECT	47uF	20%	6.3V
C214	1-124-638-11	ELECT	22uF	20%	10V
C215	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C216	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C217	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C218	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C219	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C220	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C221	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C222	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C223	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C224	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C225	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C226	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C228	1-126-154-11	ELECT	47uF	20%	6.3V
C229	1-127-515-11	ELECT(SOLID)	47uF	20%	6.3V
C230	1-126-157-11	ELECT	10uF	20%	16V
C235	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C402	1-127-515-11	ELECT(SOLID)	47uF	20%	6.3V

Ref. No.	Part No.	Description			Remark
C403	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C404	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C405	1-126-154-11	ELECT	47uF	20%	6.3V
C406	1-126-154-11	ELECT	47uF	20%	6.3V
C407	1-126-154-11	ELECT	47uF	20%	6.3V
C408	1-126-154-11	ELECT	47uF	20%	6.3V
C413	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C416	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C417	1-126-157-11	ELECT	10uF	20%	16V
C501	1-126-154-11	ELECT	47uF	20%	6.3V
C502	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C503	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C504	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C506	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C507	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C508	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C509	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C510	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C511	1-163-112-00	CERAMIC CHIP	62PF	5%	50V
C513	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C514	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C515	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C516	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C517	1-126-154-11	ELECT	47uF	20%	6.3V
C518	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C519	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C520	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C521	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C523	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C524	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C525	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C526	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C527	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C528	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C529	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C532	1-126-154-11	ELECT	47uF	20%	6.3V
C533	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C534	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C535	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C536	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C537	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C538	1-163-224-11	CERAMIC CHIP	7PF	0.25PF	50V
C540	1-216-295-00	METAL CHIP	0 5%		1/10W
C541	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C542	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C543	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C544	1-163-085-00	CERAMIC CHIP	2PF		50V
C545	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C546	1-163-087-00	CERAMIC CHIP	4PF		50V

Ref. No.	Part No.	Description			Remark
C547	1-163-085-00	CERAMIC CHIP	2PF		50V
C551	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C552	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C553	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C554	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C555	1-124-126-00	ELECT	47uF	20%	10V
C556	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C557	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C558	1-126-154-11	ELECT	47uF	20%	6.3V
C559	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C560	1-126-154-11	ELECT	47uF	20%	6.3V
C561	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C562	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C563	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C565	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C566	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C567	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C570	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C601	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C602	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C603	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C604	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C605	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C606	1-126-157-11	ELECT	10uF	20%	16V
C607	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C608	1-126-154-11	ELECT	47uF	20%	6.3V
C609	1-126-154-11	ELECT	47uF	20%	6.3V
C610	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C611	1-164-346-11	CERAMIC CHIP	1uF		16V
C612	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C613	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C614	1-126-162-11	ELECT	3.3uF	20%	50V
C615	1-126-162-11	ELECT	3.3uF	20%	50V
C616	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C617	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C618	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C619	1-126-162-11	ELECT	3.3uF	20%	50V
C620	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C621	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C622	1-126-163-11	ELECT	4.7uF	20%	50V
C623	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C624	1-126-154-11	ELECT	47uF	20%	6.3V
C625	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C626	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C627	1-126-154-11	ELECT	47uF	20%	6.3V
C628	1-126-154-11	ELECT	47uF	20%	6.3V
C629	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C630	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C631	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C632	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C633	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C635	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C638	1-126-154-11	ELECT	47uF	20%	6.3V
C643	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C646	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C648	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C649	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C650	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C651	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C654	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C655	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C656	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C658	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C659	1-126-163-11	ELECT	4.7uF	20%	50V
C660	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C661	1-126-154-11	ELECT	47uF	20%	6.3V
C662	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C663	1-126-154-11	ELECT	47uF	20%	6.3V
C665	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C666	1-126-154-11	ELECT	47uF	20%	6.3V
C702	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C708	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C709	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C710	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C711	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C712	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C713	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C714	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C715	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C716	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C717	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C719	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C720	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C721	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C722	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C723	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C724	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C725	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C726	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C727	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C728	1-126-154-11	ELECT	47uF	20%	6.3V
C729	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C731	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C732	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C733	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C734	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C735	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C736	1-163-243-11	CERAMIC CHIP	47PF	5%	50V

Ref. No.	Part No.	Description	Remark
C737	1-163-245-11	CERAMIC CHIP 56PF 5% 50V	
C738	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C900	1-126-154-11	ELECT 47uF 20% 6.3V	
C901	1-126-154-11	ELECT 47uF 20% 6.3V	
C902	1-126-176-11	ELECT 220uF 20% 10V	
C998	1-127-515-11	ELECT(SOLID) 47uF 20% 6.3V	
C999	1-163-253-11	CERAMIC CHIP 120PF 5% 50V	
		< FILTER >	
CF601	1-527-831-00	FILTER, CERAMIC	
		< CONNECTOR >	
CN101	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
CN102	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
CN103	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
CN104	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
CN105	1-691-053-21	HOUSING, CONNECTOR 21P	
CN106	1-569-337-11	CONNECTOR, BOARD TO BOARD 11P	
* CN107	1-691-047-21	HOUSING, CONNECTOR 15P	
CN601	1-573-842-11	CONNECTOR, BOARD TO BOARD 10P	
CN602	1-573-848-11	CONNECTOR, BOARD TO BOARD 16P	
		< DIODE >	
D101	8-719-104-34	DIODE 1S2836	
D102	8-719-801-78	DIODE 1SS184	
D104	8-719-801-78	DIODE 1SS184	
D502	8-719-801-78	DIODE 1SS184	
D503	8-719-106-44	DIODE RD9.1M-B2	
D601	8-719-801-78	DIODE 1SS184	
D900	8-719-041-79	DIODE MA721WA-TX	
		< FERRITE BEAD >	
FB601	1-412-364-11	INDUCTOR OUH	
FB602	1-412-364-11	INDUCTOR OUH	
FB603	1-412-364-11	INDUCTOR OUH	
		< FILTER >	
FL101	1-239-168-11	FILTER, LOW PASS (DE MOD)	
FL102	1-239-169-11	FILTER, LOW PASS (Y)	
FL103	1-236-774-11	FILTER, LOW PASS (Y)	
FL501	1-409-466-11	TRAP	
FL502	1-239-171-11	FILTER, CHROMA BAND PASS	
FL503	1-415-858-11	DELAY LINE	
FL504	1-415-858-11	DELAY LINE	
FL601	1-239-236-11	ENCAPSULATED COMPONENT	
FL602	1-239-236-11	ENCAPSULATED COMPONENT	
FL603	1-239-236-11	ENCAPSULATED COMPONENT	
FL604	1-236-925-11	FILTER, LOW PASS	
FL605	1-236-926-11	FILTER, BAND PASS	
		< IC >	
IC103	8-759-266-00	IC NJM2209M	
IC104	8-759-084-76	IC MM1111XF	
IC105	8-752-065-89	IC CXA1810Q	
IC401	8-759-009-10	IC MC14069UBF	
IC402	8-759-009-19	IC MC14081BF	
IC403	8-759-009-10	IC MC14069UBF	
IC405	8-759-504-46	IC PQ05RF1	
IC406	8-759-300-71	IC HD14053BFP	
IC501	8-752-066-68	IC CXA1725M	
IC502	8-759-012-00	IC MC10H116M	
IC503	8-759-998-32	IC CXD2107M	
IC601	8-759-506-97	IC BU5801K	
IC602	8-752-332-68	IC CXL5502M	
IC603	8-752-334-55	IC CXD1175AM	
IC604	8-752-342-61	IC CXD2105AQ	
IC701	8-759-710-07	IC NJM2234M	
		< JUMPER RESISTOR >	
JR003	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR004	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR005	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR006	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR007	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR008	1-216-296-91	METAL GLAZE 0 5% 1/8W	
		< COIL >	
L101	1-408-982-11	INDUCTOR 100uH	
L102	1-408-967-21	INDUCTOR 5.6uH	
L103	1-408-970-21	INDUCTOR 10uH	
L104	1-410-390-11	INDUCTOR CHIP 56uH	
L105	1-410-390-11	INDUCTOR CHIP 56uH	
L106	1-410-388-31	INDUCTOR CHIP 39uH	
L107	1-410-386-11	INDUCTOR CHIP 27uH	
L108	1-410-391-11	INDUCTOR CHIP 68uH	
L109	1-408-982-11	INDUCTOR 100uH	
L110	1-410-381-11	INDUCTOR CHIP 10uH	
L111	1-408-982-11	INDUCTOR 100uH	
L112	1-408-982-11	INDUCTOR 100uH	
L113	1-410-393-11	INDUCTOR CHIP 100uH	
L114	1-408-982-11	INDUCTOR 100uH	
L115	1-408-970-21	INDUCTOR 10uH	
L117	1-410-388-31	INDUCTOR CHIP 39uH	
L118	1-410-390-11	INDUCTOR CHIP 56uH	
L119	1-408-948-00	INDUCTOR 220uH	
L120	1-408-982-11	INDUCTOR 100uH	

Ref. No.	Part No.	Description	Remark
L121	1-408-979-21	INDUCTOR 56uH	
L122	1-410-388-31	INDUCTOR CHIP 39uH	
L123	1-410-385-11	INDUCTOR CHIP 22uH	
L124	1-408-982-11	INDUCTOR 100uH	
L125	1-408-982-11	INDUCTOR 100uH	
L126	1-408-974-21	INDUCTOR 22uH	
L127	1-410-386-11	INDUCTOR CHIP 27uH	
L128	1-410-383-31	INDUCTOR CHIP 15uH	
L401	1-408-982-11	INDUCTOR 100uH	
L501	1-408-982-11	INDUCTOR 100uH	
L503	1-408-985-21	INDUCTOR 180uH	
L504	1-408-968-21	INDUCTOR 6.8uH	
L505	1-408-963-11	INDUCTOR 2.7uH	
L506	1-408-968-21	INDUCTOR 6.8uH	
L508	1-408-982-11	INDUCTOR 100uH	
L509	1-408-982-11	INDUCTOR 100uH	
L510	1-408-987-21	INDUCTOR 330uH	
L511	1-408-984-21	INDUCTOR 150uH	
L512	1-408-984-21	INDUCTOR 150uH	
L513	1-408-982-11	INDUCTOR 100uH	
L515	1-408-973-21	INDUCTOR 18uH	
L518	1-408-982-11	INDUCTOR 100uH	
L519	1-408-982-11	INDUCTOR 100uH	
L520	1-408-967-21	INDUCTOR 5.6uH	
L521	1-408-972-21	INDUCTOR 15uH	
L522	1-408-970-21	INDUCTOR 10uH	
L523	1-408-985-21	INDUCTOR 180uH	
L601	1-408-982-11	INDUCTOR 100uH	
L602	1-408-978-21	INDUCTOR 47uH	
L705	1-408-984-21	INDUCTOR 150uH	
L706	1-408-948-00	INDUCTOR 220uH	
L707	1-408-987-21	INDUCTOR 330uH	
L708	1-408-982-11	INDUCTOR 100uH	
L710	1-408-987-21	INDUCTOR 330uH	
L711	1-408-983-21	INDUCTOR 120uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q004	8-729-901-01	TRANSISTOR DTC144EK	
Q005	8-729-901-01	TRANSISTOR DTC144EK	
Q100	8-729-010-25	TRANSISTOR MSD601-RT1	
Q101	8-729-010-25	TRANSISTOR MSD601-RT1	
Q102	8-729-010-05	TRANSISTOR MSB709-RT1	
Q103	8-729-010-25	TRANSISTOR MSD601-RT1	
Q104	8-729-010-25	TRANSISTOR MSD601-RT1	
Q105	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q106	8-729-010-25	TRANSISTOR MSD601-RT1	
Q107	8-729-010-25	TRANSISTOR MSD601-RT1	
Q109	8-729-010-25	TRANSISTOR MSD601-RT1	
Q110	8-729-010-25	TRANSISTOR MSD601-RT1	
Q111	8-729-901-06	TRANSISTOR DTA144EK	
Q112	8-729-010-25	TRANSISTOR MSD601-RT1	
Q113	8-729-010-25	TRANSISTOR MSD601-RT1	
Q114	8-729-010-25	TRANSISTOR MSD601-RT1	
Q115	8-729-010-25	TRANSISTOR MSD601-RT1	
Q116	8-729-901-01	TRANSISTOR DTC144EK	
Q118	8-729-010-25	TRANSISTOR MSD601-RT1	
Q119	8-729-010-05	TRANSISTOR MSB709-RT1	
Q120	8-729-010-25	TRANSISTOR MSD601-RT1	
Q121	8-729-010-25	TRANSISTOR MSD601-RT1	
Q122	8-729-901-01	TRANSISTOR DTC144EK	
Q123	8-729-010-25	TRANSISTOR MSD601-RT1	
Q124	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q125	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q126	8-729-901-06	TRANSISTOR DTA144EK	
Q127	8-729-010-25	TRANSISTOR MSD601-RT1	
Q128	8-729-010-25	TRANSISTOR MSD601-RT1	
Q129	8-729-010-25	TRANSISTOR MSD601-RT1	
Q130	8-729-901-06	TRANSISTOR DTA144EK	
Q131	8-729-010-25	TRANSISTOR MSD601-RT1	
Q132	8-729-010-25	TRANSISTOR MSD601-RT1	
Q133	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q134	8-729-901-06	TRANSISTOR DTA144EK	
Q135	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q136	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q137	8-729-901-06	TRANSISTOR DTA144EK	
Q138	8-729-010-05	TRANSISTOR MSB709-RT1	
Q139	8-729-010-05	TRANSISTOR MSB709-RT1	
Q140	8-729-010-25	TRANSISTOR MSD601-RT1	
Q141	8-729-901-01	TRANSISTOR DTC144EK	
Q142	8-729-010-05	TRANSISTOR MSB709-RT1	
Q143	8-729-901-01	TRANSISTOR DTC144EK	
Q144	8-729-901-01	TRANSISTOR DTC144EK	
Q145	8-729-901-01	TRANSISTOR DTC144EK	
Q146	8-729-010-25	TRANSISTOR MSD601-RT1	
Q147	8-729-010-25	TRANSISTOR MSD601-RT1	
Q148	8-729-901-06	TRANSISTOR DTA144EK	
Q149	8-729-010-05	TRANSISTOR MSB709-RT1	
Q150	8-729-010-05	TRANSISTOR MSB709-RT1	
Q151	8-729-010-05	TRANSISTOR MSB709-RT1	
Q152	8-729-010-05	TRANSISTOR MSB709-RT1	
Q153	8-729-010-25	TRANSISTOR MSD601-RT1	
Q154	8-729-010-25	TRANSISTOR MSD601-RT1	
Q155	8-729-901-01	TRANSISTOR DTC144EK	
Q156	8-729-901-01	TRANSISTOR DTC144EK	
Q157	8-729-901-01	TRANSISTOR DTC144EK	
Q158	8-729-901-06	TRANSISTOR DTA144EK	
Q159	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q160	8-729-202-38	TRANSISTOR 2SC3326N-A	

Ref. No.	Part No.	Description	Remark
Q161	8-729-010-25	TRANSISTOR MSD601-RT1	
Q162	8-729-010-25	TRANSISTOR MSD601-RT1	
Q164	8-729-010-25	TRANSISTOR MSD601-RT1	
Q165	8-729-010-25	TRANSISTOR MSD601-RT1	
Q166	8-729-010-25	TRANSISTOR MSD601-RT1	
Q177	8-729-901-01	TRANSISTOR DTC144EK	
Q401	8-729-901-06	TRANSISTOR DTA144EK	
Q402	8-729-901-01	TRANSISTOR DTC144EK	
Q403	8-729-901-06	TRANSISTOR DTA144EK	
Q404	8-729-901-01	TRANSISTOR DTC144EK	
Q405	8-729-901-06	TRANSISTOR DTA144EK	
Q406	8-729-901-01	TRANSISTOR DTC144EK	
Q407	8-729-010-25	TRANSISTOR MSD601-RT1	
Q408	8-729-010-25	TRANSISTOR MSD601-RT1	
Q501	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q502	8-729-010-25	TRANSISTOR MSD601-RT1	
Q503	8-729-010-25	TRANSISTOR MSD601-RT1	
Q504	8-729-901-01	TRANSISTOR DTC144EK	
Q505	8-729-901-01	TRANSISTOR DTC144EK	
Q506	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q507	8-729-901-01	TRANSISTOR DTC144EK	
Q508	8-729-901-06	TRANSISTOR DTA144EK	
Q509	8-729-010-25	TRANSISTOR MSD601-RT1	
Q511	8-729-901-06	TRANSISTOR DTA144EK	
Q512	8-729-901-01	TRANSISTOR DTC144EK	
Q513	8-729-010-25	TRANSISTOR MSD601-RT1	
Q514	8-729-010-25	TRANSISTOR MSD601-RT1	
Q515	8-729-010-25	TRANSISTOR MSD601-RT1	
Q516	8-729-010-25	TRANSISTOR MSD601-RT1	
Q517	8-729-010-25	TRANSISTOR MSD601-RT1	
Q518	8-729-010-25	TRANSISTOR MSD601-RT1	
Q519	8-729-901-01	TRANSISTOR DTC144EK	
Q520	8-729-901-01	TRANSISTOR DTC144EK	
Q521	8-729-901-01	TRANSISTOR DTC144EK	
Q522	8-729-901-01	TRANSISTOR DTC144EK	
Q523	8-729-901-01	TRANSISTOR DTC144EK	
Q524	8-729-010-25	TRANSISTOR MSD601-RT1	
Q525	8-729-901-06	TRANSISTOR DTA144EK	
Q528	8-729-801-46	TRANSISTOR 2SC3064-F	
Q529	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q530	8-729-216-21	TRANSISTOR 2SA1162-Y	
Q531	8-729-806-64	TRANSISTOR 2SA1237F-6B	
Q532	8-729-010-05	TRANSISTOR MSB709-RT1	
Q533	8-729-901-01	TRANSISTOR DTC144EK	
Q534	8-729-010-05	TRANSISTOR MSB709-RT1	
Q535	8-729-010-25	TRANSISTOR MSD601-RT1	
Q536	8-729-901-01	TRANSISTOR DTC144EK	
Q537	8-729-901-01	TRANSISTOR DTC144EK	
Q538	8-729-010-25	TRANSISTOR MSD601-RT1	
Q539	8-729-010-25	TRANSISTOR MSD601-RT1	
Q540	8-729-010-05	TRANSISTOR MSB709-RT1	
Q610	8-729-010-25	TRANSISTOR MSD601-RT1	
Q611	8-729-010-25	TRANSISTOR MSD601-RT1	
Q612	8-729-010-05	TRANSISTOR MSB709-RT1	
Q613	8-729-010-25	TRANSISTOR MSD601-RT1	
Q614	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q615	8-729-010-05	TRANSISTOR MSB709-RT1	
Q616	8-729-010-05	TRANSISTOR MSB709-RT1	
Q617	8-729-010-25	TRANSISTOR MSD601-RT1	
Q618	8-729-010-05	TRANSISTOR MSB709-RT1	
Q619	8-729-010-25	TRANSISTOR MSD601-RT1	
Q620	8-729-010-05	TRANSISTOR MSB709-RT1	
Q621	8-729-010-05	TRANSISTOR MSB709-RT1	
Q623	8-729-010-25	TRANSISTOR MSD601-RT1	
Q624	8-729-010-05	TRANSISTOR MSB709-RT1	
Q701	8-729-010-05	TRANSISTOR MSB709-RT1	
Q702	8-729-010-25	TRANSISTOR MSD601-RT1	
Q703	8-729-010-05	TRANSISTOR MSB709-RT1	
Q704	8-729-010-25	TRANSISTOR MSD601-RT1	
Q705	8-729-901-06	TRANSISTOR DTA144EK	
Q706	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q707	8-729-010-25	TRANSISTOR MSD601-RT1	
Q708	8-729-901-01	TRANSISTOR DTC144EK	
Q709	8-729-901-06	TRANSISTOR DTA144EK	
Q711	8-729-010-25	TRANSISTOR MSD601-RT1	
Q712	8-729-901-01	TRANSISTOR DTC144EK	
Q713	8-729-010-05	TRANSISTOR MSB709-RT1	
Q714	8-729-010-25	TRANSISTOR MSD601-RT1	
Q715	8-729-901-01	TRANSISTOR DTC144EK	
Q716	8-729-010-25	TRANSISTOR MSD601-RT1	
Q717	8-729-010-25	TRANSISTOR MSD601-RT1	
Q718	8-729-010-25	TRANSISTOR MSD601-RT1	
Q719	8-729-010-25	TRANSISTOR MSD601-RT1	
Q720	8-729-010-25	TRANSISTOR MSD601-RT1	
Q722	8-729-010-25	TRANSISTOR MSD601-RT1	
Q900	8-729-901-01	TRANSISTOR DTC144EK	
Q901	8-729-010-25	TRANSISTOR MSD601-RT1	
Q902	8-729-010-25	TRANSISTOR MSD601-RT1	
Q903	8-729-901-01	TRANSISTOR DTC144EK	
Q904	8-729-010-25	TRANSISTOR MSD601-RT1	
Q905	8-729-901-01	TRANSISTOR DTC144EK	
Q996	8-729-901-01	TRANSISTOR DTC144EK	
		< RESISTOR >	
R072	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R102	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R103	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R104	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R105	1-216-059-00	METAL CHIP 2.7K 5%	1/10W
R106	1-216-041-00	METAL CHIP 470 5%	1/10W
R107	1-216-039-00	METAL CHIP 390 5%	1/10W
R108	1-216-031-00	METAL CHIP 180 5%	1/10W
R109	1-216-039-00	METAL CHIP 390 5%	1/10W
R110	1-216-039-00	METAL CHIP 390 5%	1/10W
R111	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
R112	1-216-041-00	METAL CHIP 470 5%	1/10W
R113	1-216-047-00	METAL CHIP 820 5%	1/10W
R114	1-216-041-00	METAL CHIP 470 5%	1/10W
R115	1-216-037-00	METAL CHIP 330 5%	1/10W
R116	1-216-041-00	METAL CHIP 470 5%	1/10W
R118	1-216-073-00	METAL CHIP 10K 5%	1/10W
R119	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R120	1-216-085-00	METAL CHIP 33K 5%	1/10W
R121	1-216-081-00	METAL CHIP 22K 5%	1/10W
R122	1-216-047-00	METAL CHIP 820 5%	1/10W
R123	1-216-037-00	METAL CHIP 330 5%	1/10W
R124	1-216-043-00	METAL CHIP 560 5%	1/10W
R125	1-216-073-00	METAL CHIP 10K 5%	1/10W
R126	1-216-025-00	METAL CHIP 100 5%	1/10W
R127	1-216-073-00	METAL CHIP 10K 5%	1/10W
R128	1-216-073-00	METAL CHIP 10K 5%	1/10W
R129	1-216-073-00	METAL CHIP 10K 5%	1/10W
R130	1-216-073-00	METAL CHIP 10K 5%	1/10W
R131	1-216-047-00	METAL CHIP 820 5%	1/10W
R132	1-216-047-00	METAL CHIP 820 5%	1/10W
R133	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R134	1-216-046-00	METAL CHIP 750 5%	1/10W
R135	1-216-041-00	METAL CHIP 470 5%	1/10W
R136	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
R137	1-216-029-00	METAL CHIP 150 5%	1/10W
R138	1-216-077-00	METAL CHIP 15K 5%	1/10W
R139	1-216-049-00	METAL CHIP 1K 5%	1/10W
R140	1-216-049-00	METAL CHIP 1K 5%	1/10W
R141	1-216-049-00	METAL CHIP 1K 5%	1/10W
R142	1-216-049-00	METAL CHIP 1K 5%	1/10W
R143	1-216-063-00	METAL CHIP 3.9K 5%	1/10W
R144	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R145	1-216-049-00	METAL CHIP 1K 5%	1/10W
R146	1-216-085-00	METAL CHIP 33K 5%	1/10W
R147	1-216-091-00	METAL CHIP 56K 5%	1/10W
R148	1-216-041-00	METAL CHIP 470 5%	1/10W
R149	1-216-049-00	METAL CHIP 1K 5%	1/10W
R150	1-808-819-11	THERMISTOR, NTC (2125)	
R151	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R152	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R153	1-216-049-00	METAL CHIP 1K 5%	1/10W
R154	1-216-049-00	METAL CHIP 1K 5%	1/10W

Ref. No.	Part No.	Description	Remark
R155	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R156	1-216-027-00	METAL CHIP 120 5%	1/10W
R157	1-216-081-00	METAL CHIP 22K 5%	1/10W
R158	1-216-081-00	METAL CHIP 22K 5%	1/10W
R159	1-216-049-00	METAL CHIP 1K 5%	1/10W
R160	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R161	1-216-049-00	METAL CHIP 1K 5%	1/10W
R162	1-216-035-00	METAL CHIP 270 5%	1/10W
R163	1-216-039-00	METAL CHIP 390 5%	1/10W
R164	1-216-041-00	METAL CHIP 470 5%	1/10W
R166	1-216-043-00	METAL CHIP 560 5%	1/10W
R167	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R168	1-216-295-00	METAL CHIP 0 5%	1/10W
R169	1-216-025-00	METAL CHIP 100 5%	1/10W
R170	1-216-073-00	METAL CHIP 10K 5%	1/10W
R171	1-216-073-00	METAL CHIP 10K 5%	1/10W
R172	1-216-041-00	METAL CHIP 470 5%	1/10W
R173	1-216-049-00	METAL CHIP 1K 5%	1/10W
R174	1-216-049-00	METAL CHIP 1K 5%	1/10W
R175	1-216-073-00	METAL CHIP 10K 5%	1/10W
R176	1-216-035-00	METAL CHIP 270 5%	1/10W
R177	1-216-041-00	METAL CHIP 470 5%	1/10W
R178	1-216-043-00	METAL CHIP 560 5%	1/10W
R179	1-216-049-00	METAL CHIP 1K 5%	1/10W
R180	1-216-045-00	METAL CHIP 680 5%	1/10W
R181	1-216-073-00	METAL CHIP 10K 5%	1/10W
R182	1-216-073-00	METAL CHIP 10K 5%	1/10W
R183	1-216-067-00	METAL CHIP 5.6K 5%	1/10W
R184	1-216-073-00	METAL CHIP 10K 5%	1/10W
R186	1-216-059-00	METAL CHIP 2.7K 5%	1/10W
R187	1-216-067-00	METAL CHIP 5.6K 5%	1/10W
R188	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R189	1-216-029-00	METAL CHIP 150 5%	1/10W
R190	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R191	1-216-073-00	METAL CHIP 10K 5%	1/10W
R192	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R193	1-216-039-00	METAL CHIP 390 5%	1/10W
R195	1-216-041-00	METAL CHIP 470 5%	1/10W
R196	1-216-029-00	METAL CHIP 150 5%	1/10W
R197	1-216-031-00	METAL CHIP 180 5%	1/10W
R198	1-216-049-00	METAL CHIP 1K 5%	1/10W
R199	1-216-049-00	METAL CHIP 1K 5%	1/10W
R200	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R201	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
R202	1-216-043-00	METAL CHIP 560 5%	1/10W
R203	1-216-073-00	METAL CHIP 10K 5%	1/10W
R204	1-216-073-00	METAL CHIP 10K 5%	1/10W
R205	1-216-049-00	METAL CHIP 1K 5%	1/10W
R206	1-216-073-00	METAL CHIP 10K 5%	1/10W

Ref. No.	Part No.	Description			Remark
R207	1-216-035-00	METAL CHIP	270	5%	1/10W
R208	1-216-073-00	METAL CHIP	10K	5%	1/10W
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W
R210	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R211	1-216-085-00	METAL CHIP	33K	5%	1/10W
R212	1-216-049-00	METAL CHIP	1K	5%	1/10W
R213	1-216-031-00	METAL CHIP	180	5%	1/10W
R214	1-216-073-00	METAL CHIP	10K	5%	1/10W
R215	1-216-073-00	METAL CHIP	10K	5%	1/10W
R216	1-216-077-00	METAL CHIP	15K	5%	1/10W
R217	1-216-295-00	METAL CHIP	0	5%	1/10W
R218	1-216-073-00	METAL CHIP	10K	5%	1/10W
R219	1-216-085-00	METAL CHIP	33K	5%	1/10W
R220	1-216-077-00	METAL CHIP	15K	5%	1/10W
R221	1-216-049-00	METAL CHIP	1K	5%	1/10W
R222	1-218-754-11	METAL CHIP	120K	0.50%	1/10W
R223	1-216-695-11	METAL CHIP	68K	0.5%	1/10W
R224	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R225	1-216-681-11	METAL CHIP	18K	0.5%	1/10W
R226	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R227	1-216-049-00	METAL CHIP	1K	5%	1/10W
R228	1-216-073-00	METAL CHIP	10K	5%	1/10W
R229	1-216-077-00	METAL CHIP	15K	5%	1/10W
R230	1-216-047-00	METAL CHIP	820	5%	1/10W
R231	1-216-041-00	METAL CHIP	470	5%	1/10W
R232	1-216-049-00	METAL CHIP	1K	5%	1/10W
R233	1-216-050-00	METAL GLAZE	1.1K	5%	1/10W
R234	1-216-047-00	METAL CHIP	820	5%	1/10W
R236	1-216-049-00	METAL CHIP	1K	5%	1/10W
R237	1-216-295-00	METAL CHIP	0	5%	1/10W
R238	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R239	1-216-049-00	METAL CHIP	1K	5%	1/10W
R241	1-216-075-00	METAL CHIP	12K	5%	1/10W
R242	1-216-295-00	METAL CHIP	0	5%	1/10W
R243	1-216-075-00	METAL CHIP	12K	5%	1/10W
R244	1-216-049-00	METAL CHIP	1K	5%	1/10W
R245	1-216-079-00	METAL CHIP	18K	5%	1/10W
R246	1-216-085-00	METAL CHIP	33K	5%	1/10W
R247	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R248	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R249	1-216-295-00	METAL CHIP	0	5%	1/10W
R250	1-216-075-00	METAL CHIP	12K	5%	1/10W
R251	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R252	1-216-295-00	METAL CHIP	0	5%	1/10W
R253	1-216-075-00	METAL CHIP	12K	5%	1/10W
R254	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R255	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R256	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R257	1-216-079-00	METAL CHIP	18K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R258	1-216-045-00	METAL CHIP	680	5%	1/10W
R259	1-216-049-00	METAL CHIP	1K	5%	1/10W
R260	1-216-073-00	METAL CHIP	10K	5%	1/10W
R261	1-216-073-00	METAL CHIP	10K	5%	1/10W
R262	1-216-073-00	METAL CHIP	10K	5%	1/10W
R263	1-216-295-00	METAL CHIP	0	5%	1/10W
R264	1-216-295-00	METAL CHIP	0	5%	1/10W
R267	1-216-073-00	METAL CHIP	10K	5%	1/10W
R268	1-216-049-00	METAL CHIP	1K	5%	1/10W
R269	1-216-043-00	METAL CHIP	560	5%	1/10W
R270	1-216-641-11	METAL CHIP	390	0.5%	1/10W
R271	1-216-643-11	METAL CHIP	470	0.5%	1/10W
R272	1-216-049-00	METAL CHIP	1K	5%	1/10W
R273	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R274	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R275	1-216-653-11	METAL CHIP	1.2K	0.5%	1/10W
R276	1-216-295-00	METAL CHIP	0	5%	1/10W
R277	1-216-073-00	METAL CHIP	10K	5%	1/10W
R278	1-216-073-00	METAL CHIP	10K	5%	1/10W
R279	1-216-049-00	METAL CHIP	1K	5%	1/10W
R280	1-216-073-00	METAL CHIP	10K	5%	1/10W
R281	1-216-073-00	METAL CHIP	10K	5%	1/10W
R282	1-216-081-00	METAL CHIP	22K	5%	1/10W
R283	1-216-077-00	METAL CHIP	15K	5%	1/10W
R284	1-216-046-00	METAL CHIP	750	5%	1/10W
R285	1-216-043-00	METAL CHIP	560	5%	1/10W
R286	1-216-043-00	METAL CHIP	560	5%	1/10W
R287	1-216-049-00	METAL CHIP	1K	5%	1/10W
R288	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R289	1-216-049-00	METAL CHIP	1K	5%	1/10W
R290	1-216-049-00	METAL CHIP	1K	5%	1/10W
R291	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R297	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R298	1-216-097-00	METAL CHIP	100K	5%	1/10W
R299	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R301	1-216-295-00	METAL CHIP	0	5%	1/10W
R302	1-216-295-00	METAL CHIP	0	5%	1/10W
R305	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R306	1-216-049-00	METAL CHIP	1K	5%	1/10W
R307	1-216-047-00	METAL CHIP	820	5%	1/10W
R308	1-216-049-00	METAL CHIP	1K	5%	1/10W
R309	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R310	1-216-295-00	METAL CHIP	0	5%	1/10W
R311	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R401	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R402	1-216-295-00	METAL CHIP	0	5%	1/10W
R404	1-216-295-00	METAL CHIP	0	5%	1/10W
R405	1-216-295-00	METAL CHIP	0	5%	1/10W
R408	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R409	1-216-081-00	METAL CHIP	22K	5%	1/10W
R410	1-216-049-00	METAL CHIP	1K	5%	1/10W
R411	1-216-081-00	METAL CHIP	22K	5%	1/10W
R412	1-216-049-00	METAL CHIP	1K	5%	1/10W
R501	1-216-085-00	METAL CHIP	33K	5%	1/10W
R502	1-216-077-00	METAL CHIP	15K	5%	1/10W
R503	1-216-043-00	METAL CHIP	560	5%	1/10W
R504	1-216-039-00	METAL CHIP	390	5%	1/10W
R505	1-216-041-00	METAL CHIP	470	5%	1/10W
R506	1-216-049-00	METAL CHIP	1K	5%	1/10W
R507	1-216-049-00	METAL CHIP	1K	5%	1/10W
R508	1-216-073-00	METAL CHIP	10K	5%	1/10W
R509	1-216-043-00	METAL CHIP	560	5%	1/10W
R510	1-216-073-00	METAL CHIP	10K	5%	1/10W
R511	1-216-043-00	METAL CHIP	560	5%	1/10W
R512	1-216-049-00	METAL CHIP	1K	5%	1/10W
R513	1-216-049-00	METAL CHIP	1K	5%	1/10W
R514	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R515	1-216-081-00	METAL CHIP	22K	5%	1/10W
R516	1-216-081-00	METAL CHIP	22K	5%	1/10W
R517	1-216-037-00	METAL CHIP	330	5%	1/10W
R518	1-216-041-00	METAL CHIP	470	5%	1/10W
R519	1-216-041-00	METAL CHIP	470	5%	1/10W
R520	1-216-037-00	METAL CHIP	330	5%	1/10W
R522	1-216-041-00	METAL CHIP	470	5%	1/10W
R523	1-218-768-11	METAL CHIP	470K	0.50%	1/10W
R524	1-216-695-11	METAL CHIP	68K	0.5%	1/10W
R525	1-216-077-00	METAL CHIP	15K	5%	1/10W
R526	1-216-683-11	METAL CHIP	22K	0.5%	1/10W
R527	1-216-041-00	METAL CHIP	470	5%	1/10W
R528	1-216-073-00	METAL CHIP	10K	5%	1/10W
R529	1-216-073-00	METAL CHIP	10K	5%	1/10W
R530	1-216-043-00	METAL CHIP	560	5%	1/10W
R531	1-216-043-00	METAL CHIP	560	5%	1/10W
R532	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R533	1-216-043-00	METAL CHIP	560	5%	1/10W
R534	1-216-047-00	METAL CHIP	820	5%	1/10W
R535	1-216-054-00	METAL GLAZE	1.6K	5%	1/10W
R536	1-216-054-00	METAL GLAZE	1.6K	5%	1/10W
R537	1-216-049-00	METAL CHIP	1K	5%	1/10W
R538	1-216-049-00	METAL CHIP	1K	5%	1/10W
R539	1-216-033-00	METAL CHIP	220	5%	1/10W
R540	1-216-049-00	METAL CHIP	1K	5%	1/10W
R541	1-216-049-00	METAL CHIP	1K	5%	1/10W
R543	1-216-049-00	METAL CHIP	1K	5%	1/10W
R544	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R545	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R546	1-216-073-00	METAL CHIP	10K	5%	1/10W
R547	1-216-049-00	METAL CHIP	1K	5%	1/10W
R549	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R550	1-218-754-11	METAL CHIP	120K	0.50%	1/10W
R551	1-216-041-00	METAL CHIP	470	5%	1/10W
R552	1-216-041-00	METAL CHIP	470	5%	1/10W
R553	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R555	1-216-049-00	METAL CHIP	1K	5%	1/10W
R556	1-216-041-00	METAL CHIP	470	5%	1/10W
R557	1-216-041-00	METAL CHIP	470	5%	1/10W
R558	1-216-081-00	METAL CHIP	22K	5%	1/10W
R559	1-216-047-00	METAL CHIP	820	5%	1/10W
R560	1-216-049-00	METAL CHIP	1K	5%	1/10W
R561	1-216-035-00	METAL CHIP	270	5%	1/10W
R562	1-216-049-00	METAL CHIP	1K	5%	1/10W
R563	1-216-049-00	METAL CHIP	1K	5%	1/10W
R564	1-216-295-00	METAL CHIP	0	5%	1/10W
R565	1-216-049-00	METAL CHIP	1K	5%	1/10W
R566	1-216-049-00	METAL CHIP	1K	5%	1/10W
R567	1-216-037-00	METAL CHIP	330	5%	1/10W
R568	1-216-045-00	METAL CHIP	680	5%	1/10W
R569	1-216-073-00	METAL CHIP	10K	5%	1/10W
R570	1-216-049-00	METAL CHIP	1K	5%	1/10W
R572	1-216-085-00	METAL CHIP	33K	5%	1/10W
R573	1-216-081-00	METAL CHIP	22K	5%	1/10W
R574	1-216-049-00	METAL CHIP	1K	5%	1/10W
R575	1-216-049-00	METAL CHIP	1K	5%	1/10W
R576	1-216-049-00	METAL CHIP	1K	5%	1/10W
R578	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R579	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R580	1-216-041-00	METAL CHIP	470	5%	1/10W
R581	1-216-041-00	METAL CHIP	470	5%	1/10W
R582	1-216-295-00	METAL CHIP	0	5%	1/10W
R586	1-216-645-11	METAL CHIP	560	0.5%	1/10W
R587	1-216-645-11	METAL CHIP	560	0.5%	1/10W
R588	1-216-049-00	METAL CHIP	1K	5%	1/10W
R589	1-216-045-00	METAL CHIP	680	5%	1/10W
R590	1-216-025-00	METAL CHIP	100	5%	1/10W
R591	1-216-045-00	METAL CHIP	680	5%	1/10W
R592	1-216-025-00	METAL CHIP	100	5%	1/10W
R593	1-216-049-00	METAL CHIP	1K	5%	1/10W
R594	1-216-073-00	METAL CHIP	10K	5%	1/10W
R595	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R596	1-216-081-00	METAL CHIP	22K	5%	1/10W
R597	1-216-025-00	METAL CHIP	100	5%	1/10W
R598	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R599	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R602	1-216-073-00	METAL CHIP	10K	5%	1/10W
R603	1-216-081-00	METAL CHIP	22K	5%	1/10W
R604	1-216-121-00	METAL CHIP	1M	5%	1/10W
R606	1-216-049-00	METAL CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description	Remark
R607	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R608	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R609	1-216-033-00	METAL CHIP 220 5% 1/10W	
R610	1-216-043-00	METAL CHIP 560 5% 1/10W	
R611	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R612	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R613	1-216-041-00	METAL CHIP 470 5% 1/10W	
R615	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R616	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R617	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R618	1-216-013-00	METAL CHIP 33 5% 1/10W	
R619	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R620	1-216-041-00	METAL CHIP 470 5% 1/10W	
R622	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R623	1-216-041-00	METAL CHIP 470 5% 1/10W	
R624	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R625	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R626	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R627	1-216-295-00	METAL CHIP 0 5% 1/10W	
R629	1-216-295-00	METAL CHIP 0 5% 1/10W	
R631	1-216-025-00	METAL CHIP 100 5% 1/10W	
R632	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R633	1-216-025-00	METAL CHIP 100 5% 1/10W	
R634	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R635	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R636	1-216-045-00	METAL CHIP 680 5% 1/10W	
R637	1-216-041-00	METAL CHIP 470 5% 1/10W	
R640	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R657	1-216-033-00	METAL CHIP 220 5% 1/10W	
R660	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R666	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R668	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R669	1-216-033-00	METAL CHIP 220 5% 1/10W	
R670	1-216-295-00	METAL CHIP 0 5% 1/10W	
R671	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R672	1-216-295-00	METAL CHIP 0 5% 1/10W	
R673	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R674	1-216-035-00	METAL CHIP 270 5% 1/10W	
R676	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R678	1-216-295-00	METAL CHIP 0 5% 1/10W	
R679	1-216-295-00	METAL CHIP 0 5% 1/10W	
R681	1-216-295-00	METAL CHIP 0 5% 1/10W	
R682	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R683	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R684	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R685	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R686	1-216-041-00	METAL CHIP 470 5% 1/10W	
R687	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R701	1-216-043-00	METAL CHIP 560 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R702	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R703	1-216-043-00	METAL CHIP 560 5% 1/10W	
R704	1-216-043-00	METAL CHIP 560 5% 1/10W	
R705	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R706	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R712	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R713	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R714	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R715	1-216-039-00	METAL CHIP 390 5% 1/10W	
R716	1-216-047-00	METAL CHIP 820 5% 1/10W	
R717	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R718	1-216-027-00	METAL CHIP 120 5% 1/10W	
R719	1-216-041-00	METAL CHIP 470 5% 1/10W	
R720	1-216-041-00	METAL CHIP 470 5% 1/10W	
R721	1-216-041-00	METAL CHIP 470 5% 1/10W	
R722	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R723	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R724	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R725	1-216-045-00	METAL CHIP 680 5% 1/10W	
R726	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R728	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R729	1-216-295-00	METAL CHIP 0 5% 1/10W	
R730	1-216-047-00	METAL CHIP 820 5% 1/10W	
R731	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R732	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R733	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R734	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R735	1-216-035-00	METAL CHIP 270 5% 1/10W	
R736	1-216-035-00	METAL CHIP 270 5% 1/10W	
R737	1-216-043-00	METAL CHIP 560 5% 1/10W	
R738	1-216-043-00	METAL CHIP 560 5% 1/10W	
R739	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R740	1-216-041-00	METAL CHIP 470 5% 1/10W	
R741	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R742	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R743	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R744	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R745	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R746	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R747	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R748	1-216-033-00	METAL CHIP 220 5% 1/10W	
R749	1-216-043-00	METAL CHIP 560 5% 1/10W	
R750	1-216-025-00	METAL CHIP 100 5% 1/10W	
R751	1-216-037-00	METAL CHIP 330 5% 1/10W	
R752	1-216-041-00	METAL CHIP 470 5% 1/10W	
R753	1-216-041-00	METAL CHIP 470 5% 1/10W	
R754	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R755	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R756	1-216-081-00	METAL CHIP 22K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R757	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R758	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R759	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R760	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R761	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R762	1-216-043-00	METAL CHIP 560 5% 1/10W	
R764	1-216-043-00	METAL CHIP 560 5% 1/10W	
R765	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R766	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R767	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R791	1-216-295-00	METAL CHIP 0 5% 1/10W	
R792	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R801	1-216-295-00	METAL CHIP 0 5% 1/10W	
R802	1-216-295-00	METAL CHIP 0 5% 1/10W	
R819	1-216-295-00	METAL CHIP 0 5% 1/10W	
R850	1-216-295-00	METAL CHIP 0 5% 1/10W	
R901	1-216-041-00	METAL CHIP 470 5% 1/10W	
R902	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R903	1-218-776-11	METAL CHIP 1M 0.50% 1/10W	
R904	1-216-041-00	METAL CHIP 470 5% 1/10W	
R905	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R960	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< VARIABLE RESISTOR >	
RV101	1-241-393-21	RES, ADJ, METAL GLAZE 2.2K	
RV102	1-241-392-11	RES, ADJ, METAL GLAZE 1K	
RV103	1-241-392-11	RES, ADJ, METAL GLAZE 1K	
RV104	1-241-393-21	RES, ADJ, METAL GLAZE 2.2K	
RV105	1-241-393-21	RES, ADJ, METAL GLAZE 2.2K	
RV106	1-241-392-11	RES, ADJ, METAL GLAZE 1K	
RV107	1-241-395-11	RES, ADJ, METAL GLAZE 10K	
RV108	1-241-397-11	RES, ADJ, METAL GLAZE 47K	
RV109	1-241-396-11	RES, ADJ, METAL GLAZE 22K	
RV110	1-241-396-11	RES, ADJ, METAL GLAZE 22K	
RV111	1-241-396-11	RES, ADJ, METAL GLAZE 22K	
RV112	1-241-397-11	RES, ADJ, METAL GLAZE 47K	
RV113	1-241-396-11	RES, ADJ, METAL GLAZE 22K	
RV601	1-241-394-11	RES, ADJ, METAL GLAZE 4.7K	
RV602	1-241-394-11	RES, ADJ, METAL GLAZE 4.7K	
RV701	1-241-394-11	RES, ADJ, METAL GLAZE 4.7K	
RV702	1-241-391-11	RES, ADJ, METAL GLAZE 470	
RV703	1-241-391-11	RES, ADJ, METAL GLAZE 470	
RV704	1-241-391-11	RES, ADJ, METAL GLAZE 470	
RV705	1-241-392-11	RES, ADJ, METAL GLAZE 1K	
		< VIBRATOR >	
X101	1-577-080-11	VIBRATOR, CRYSTAL	

****

Ref. No.	Part No.	Description	Remark
*	A-7072-014-A	VP-40 (H) BOARD, COMPLETE ************************ (Ref.No 5,000 series)	
		< CAPACITOR >	
C301	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C302	1-124-638-11	ELECT 22uF 20% 10V	
C303	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	
C304	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	
C306	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
		< FILTER >	
CF301	1-567-192-11	OSCILLATOR, CERAMIC (4.00MHz)	
		< CONNECTOR >	
CN301	1-573-824-11	CONNECTOR, BOARD TO BOARD 10P	
		< FERRITE BEAD >	
FB301	1-412-390-21	INDUCTOR CHIP 0uH	
		< IC >	
IC301	8-759-077-99	IC MC68HC05P7FB	
IC302	8-759-009-41	IC MC14520BF	
		< COIL >	
L301	1-408-982-11	INDUCTOR 100uH	
		< TRANSISTOR >	
Q301	8-729-421-19	TRANSISTOR UN2213	
		< RESISTOR >	
R301	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R302	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R303	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R304	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R305	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R306	1-216-295-00	METAL CHIP 0 5% 1/10W	
R307	1-216-295-00	METAL CHIP 0 5% 1/10W	
R308	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R309	1-216-089-91	METAL GLAZE 47K 5% 1/10W	

****

Ref. No.	Part No.	Description			Remark
*	A-7063-987-A	WC-10 (H) BOARD, COMPLETE			
		************************			
		(Ref.No 2,000 series)			

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C003	1-126-154-11	ELECT	47uF	20%	6.3V
C020	1-126-163-11	ELECT	4.7uF	20%	50V
C029	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C030	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C031	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C032	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C033	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C034	1-163-036-00	CERAMIC CHIP	0.068uF		50V
C035	1-163-036-00	CERAMIC CHIP	0.068uF		50V
C037	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C039	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C042	1-163-986-00	CERAMIC CHIP	0.027uF	10%	25V
C043	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C046	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C047	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C048	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C049	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C050	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C051	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C052	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C053	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C054	1-163-036-00	CERAMIC CHIP	0.068uF		50V
C055	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C056	1-163-036-00	CERAMIC CHIP	0.068uF		50V
C057	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C059	1-126-154-11	ELECT	47uF	20%	6.3V
C060	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C062	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C063	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C064	1-126-154-11	ELECT	47uF	20%	6.3V
C065	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C067	1-126-154-11	ELECT	47uF	20%	6.3V
C068	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C069	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C070	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C072	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C075	1-126-154-11	ELECT	47uF	20%	6.3V
C077	1-126-154-11	ELECT	47uF	20%	6.3V
C078	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C079	1-126-154-11	ELECT	47uF	20%	6.3V
C081	1-126-154-11	ELECT	47uF	20%	6.3V
C085	1-163-241-11	CERAMIC CHIP	39PF	5%	50V

< CONNECTOR >

Ref. No.	Part No.	Description			Remark
CN001	1-573-824-11	CONNECTOR, BOARD TO BOARD 10P			
CN002	1-573-830-11	CONNECTOR, BOARD TO BOARD 16P			

< DIODE >

Ref. No.	Part No.	Description			Remark
D001	8-719-104-34	DIODE 1S2836			

< FILTER >

Ref. No.	Part No.	Description			Remark
FL001	1-406-688-11	DELAY LINE, LC			
FL002	1-406-909-11	LINE, LC DELAY			
FL002	1-406-909-21	LINE, LC DELAY			

< IC >

Ref. No.	Part No.	Description			Remark
IC001	8-759-300-71	IC HD14053BFP			
IC003	8-759-098-22	IC M52350FP			

< COIL >

Ref. No.	Part No.	Description			Remark
L005	1-410-383-31	INDUCTOR CHIP 15uH			

< TRANSISTOR >

Ref. No.	Part No.	Description			Remark
Q002	8-729-010-25	TRANSISTOR MSD601-RT1			
Q003	8-729-010-25	TRANSISTOR MSD601-RT1			
Q006	8-729-010-25	TRANSISTOR MSD601-RT1			
Q008	8-729-010-25	TRANSISTOR MSD601-RT1			
Q009	8-729-010-25	TRANSISTOR MSD601-RT1			
Q010	8-729-010-25	TRANSISTOR MSD601-RT1			
Q011	8-729-010-05	TRANSISTOR MSB709-RT1			
Q012	8-729-010-25	TRANSISTOR MSD601-RT1			
Q013	8-729-010-25	TRANSISTOR MSD601-RT1			
Q014	8-729-421-19	TRANSISTOR UN2213			
Q017	8-729-010-25	TRANSISTOR MSD601-RT1			
Q018	8-729-010-05	TRANSISTOR MSB709-RT1			

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R001	1-216-045-00	METAL CHIP	680	5%	1/10W
R002	1-216-049-00	METAL CHIP	1K	5%	1/10W
R005	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R006	1-216-081-00	METAL CHIP	22K	5%	1/10W
R010	1-216-079-00	METAL CHIP	18K	5%	1/10W
R012	1-216-043-00	METAL CHIP	560	5%	1/10W
R013	1-216-037-00	METAL CHIP	330	5%	1/10W
R017	1-216-039-00	METAL CHIP	390	5%	1/10W
R022	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R028	1-216-039-00	METAL CHIP	390	5%	1/10W
R029	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R030	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R031	1-216-049-00	METAL CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description	Remark
R037	1-216-039-00	METAL CHIP 390 5% 1/10W	
R038	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R039	1-216-039-00	METAL CHIP 390 5% 1/10W	
R041	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R042	1-216-048-00	METAL CHIP 910 5% 1/10W	
R043	1-216-630-11	METAL CHIP 130 0.5% 1/10W	
R048	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R049	1-216-090-00	METAL CHIP 51K 5% 1/10W	
R050	1-216-090-00	METAL CHIP 51K 5% 1/10W	
R051	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R052	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R053	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R055	1-216-094-00	METAL GLAZE 75K 5% 1/10W	
R056	1-216-295-00	METAL CHIP 0 5% 1/10W	
R057	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R058	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R061	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R062	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R065	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R066	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R067	1-216-295-00	METAL CHIP 0 5% 1/10W	
R070	1-216-045-00	METAL CHIP 680 5% 1/10W	
R071	1-216-295-00	METAL CHIP 0 5% 1/10W	
R073	1-216-295-00	METAL CHIP 0 5% 1/10W	
R074	1-216-295-00	METAL CHIP 0 5% 1/10W	
R075	1-216-651-11	METAL CHIP 1K 0.5% 1/10W	
R076	1-216-048-00	METAL CHIP 910 5% 1/10W	
R077	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R079	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R080	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R089	1-216-045-00	METAL CHIP 680 5% 1/10W	
R091	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R092	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R093	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R094	1-216-045-00	METAL CHIP 680 5% 1/10W	
R096	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R097	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
		< VARIABLE RESISTOR >	
RV001	1-238-856-11	RES, ADJ, CERMET 10K	
RV002	1-238-856-11	RES, ADJ, CERMET 10K	
RV003	1-238-859-11	RES, ADJ, CERMET 100K	

****

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *************	
27	1-751-609-11	CABLE, FLAT (FMF-5) 25P	
63	1-751-601-11	CABLE, FLAT (FMT-2) 27P	
65	1-765-141-11	CABLE, FLAT (FMT-7) 25P	
⚠103	1-251-135-11	AC INLET (125V/7A)	
120	1-751-600-11	CABLE, FLAT (FVR-1) 21P	
204	1-691-254-13	CONNECTOR, TRANSLATION 10P	
205	1-691-471-11	CONNECTOR, TRANSLATION 11P	
215	1-764-137-11	CONNECTOR, TRANSLATION 15P	
318	1-692-498-11	SWITCH, ROTARY	
⚠F001	1-532-743-11	FUSE, GLASS TUBE (125V/2A)	
M901	A-7048-681-A	DRUM ASSY (DGH-0A7A-R)	
M902	8-835-499-01	MOTOR, DC SCE-0501A (CAPSTAN)	
M903	X-3942-946-1	MOTOR ASSY, CAM	
M904	A-6759-573-A	MOTOR BLOCK ASSY, TRAY (including TM-119 BOARD)	

****

****

HARDWARE LIST

****

Ref. No.	Part No.	Description
#1	7-685-648-79	SCREW, TAPPING +BVTP 3X12 TYPE2, IT-3
#2	7-621-770-67	SCREW +BVTT 2.6X6 (S)
#3	7-682-645-01	SCREW +PS 3X4
#4	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3
#5	7-624-105-04	STOP RING 2.3, TYPE -E
#6	7-685-545-14	SCREW +BTP 3X6 TYPE2 N-S
#7	7-621-772-08	SCREW +B 2X3
#8	7-628-253-15	SCREW +PS 2X5
#9	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3
#11	7-688-003-01	W 3, SMALL
#12	7-688-001-01	W 2, MIDDLE
#13	7-685-104-19	+PTP 2X6

****

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
	1-417-139-11	MATCHING TRANSFORMER, ANTENNA	
	1-466-905-11	CABLE MOUSE	
	1-467-695-11	REMOTE COMMANDER (RMT-V147)	
	1-562-443-11	CONNECTOR, ANTENNA	
	1-575-334-11	CORD (WITH CONNECTOR) (STEREO AV CABLE)	
	1-696-592-11	CORD, CONNECTION (NTSC) (COAXIAL CABLE WITH F-TYPE)	
	1-751-271-11	CORD, CONNECTION (STEREO AV CABLE)	
	1-751-497-21	CORD, CONNECTION (S VIDEO CABLE)	
⚠	1-751-676-11	CORD, POWER	
	1-751-739-21	CORD, CONNECTION (LANC CONTROL (I) CABLE)	
	3-677-503-03	SHEET, PROTECTION	
	3-758-350-21	MANUAL, INSTRUCTION (ENGLISH)	
	3-758-350-31	MANUAL, INSTRUCTION (FRENCH) (Canadian)	
*	3-795-581-21	SAFEGUARD (SONY), IMPORTANT (US)	
*	3-955-848-01	CUSHION (UPPER)	
*	3-955-849-01	CUSHION (LOWER)	
*	3-958-130-11	INDIVIDUAL CARTON	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 6
INTERFACE AND IC PIN FUNCTION

6-1. SYSTEM CONTROL — VIDEO・AUDIO BLOCK INTERFACE (MA-173 BOARD)

Signal	Pin No.	I/O	VTR MODE													
			STOP	FF	REW	×2 ×4	−×2 −×4	PB	×1 (AUDIO MUTE)	PICTURE SEARCH (Hi) CUE	PICTURE SEARCH (Hi) REVIEW	PB・PAUSE	SLOW	REVERSE SLOW	REC	REC PAUSE
SP/$\overline{\text{LP}}$	IC003 ⑧	O	∗1	H	H	∗1	∗2	∗2	∗2	∗2	∗2	∗1	∗1	∗1	∗9	H/L
VA PB MODE	IC003 (98)	O	L	L	L	H	H	H	H	H	H	H	H	H	L	L
JOG VD ∗3	IC003 ②	O	L	L	L	L	L	L	L	L	L	L	L	L	L	L
RP PB MODE	IC003 ⑤	O	L	L	L	L	L	L	L	L	L	L	L	L	H	L
$\overline{\text{FE ON}}$	IC003 ⑥	O	H	H	H	H	H	H	H	H	H	H	H	H	L	H
RF SWP	IC003 (99)	O	L	∗4	∗4	∗4	∗4	∗4	∗4	∗4	∗4	∗4	∗4	∗4	∗4	∗4
JOG	IC003 ④	O	L	L	L	H	H	L	H	H	H	H	H	H	L	L
SP/$\overline{\text{LP}}$ DET	IC003 (57)	I	L	∗5	∗5	∗5	∗5	L	L	∗5	∗5	∗5	—	—	H	H
CLOG DET	IC003 (65)	I	H	∗6	∗6	∗6	∗6	∗6	∗6	∗6	∗6	∗6	∗6	∗6	H	∗6
DI COMP SYNC	IC003 (66)	I	∗7	∗7	∗7	∗7	∗7	∗7	∗7	∗7	∗7	∗7	∗7	∗7	∗7	∗7
AUDIO PB	IC003 (84)	O	L	L	L	∗8	∗8	H	∗8	∗8	∗8	H	∗8	∗8	L	L
AFM MUTE	IC003 (72)	O	L	L	L	H	H	L	H	H	H	H	H	H	L	L
$\overline{\text{VIDEO CS}}$	IC003 (25)	O	V-cycle"Low"pulse													
SO2	IC003 (80)	O	V-cycle pulse rank													
SCK2	IC003 (81)	O	V-cycle"Low"pulse rank													

∗1. This outputs the result of determining what was the previous mode. "High" output in SP mode, "Low" output in LP mode.

∗2. This outputs the result of determining which record mode the playback tape has.

∗3. Pseudo VD signal (However, only in after record mode).

∗4. Pulse of 30Hz, 50% duty (synchronized with the rotation of the drum).

∗5. "High" at the SP record portion and "Low" at the LP record portion of tape.

∗6. "High" at the blank portion or at any drop out portion of tape. Head clogging detection input.

∗7. Composite synch signal input separated from line input video signal, camera video signal or playback video signal. (This signal has positive polarity).

∗8. "Low" during shuttle editing from REC PAUSE, "High" while in any other mode.

∗9. This varies according to SP/LP switching. It becomes "High" when SP mode is entered and "Low" when LP mode is entered.

6-2. MECHANICAL CONTROL — SERVO BLOCK INTERFACE (MA-173 BOARD)

Signal	Pin No.	I/O	VTR MODE												
			STOP	FF	REW	×2 ×4	−×2 −×4	PB (×1)	PICTURE SEARCH		PB・PAUSE	SLOW	REVERSE SLOW	REC	REC PAUSE
									(Hi) CUE	(Hi) REVIEW					
T.REEL FG	IC002 (67)	I	—	*1	*1	*1	*1	*1	*1	*1	—	*1	*1	*1	—
S.REEL FG	IC002 (64)	I	—	*1	*1	*1	*1	*1	*1	*1	—	*1	*1	*1	—
ATF ERROR	IC002 (61)	I	—	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
DRUM PG	IC002 (68)	I	—	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
DRUM FG	IC002 (69)	I	—	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP FG/HMS CAP FG	IC002 (70) (77)	I	—	*5	*5	*5	*5	*5	*5	*5	—	*5	*5	*5	—
CAP ON	IC002 (91)	O	L	H	H	H	H	H	H	H	L	*8	*8	H	L
REF PILOT	IC002 (85)	O	*7	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RP PB MODE	IC002 ⑤	O	L	L	L	L	L	L	L	L	L	L	L	H	L
DRUM $\overline{\text{RVS}}$ *11	IC002 (74)	O	H	H	H	H	H	H	H	H	H	H	H	H	H
CAP FWD	IC002 (92)	O	L	H	L	H	L	H	H	L	L	*8	*9	H	L
DRUM PWM	IC002 (74)	O	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10
CAP PWM	IC002 (75)	O	L	*10	*10	*10	*10	*10	*10	*10	L	*10	*10	*10	L

*1. The amplitude modulated pulse is input by the rotation of the reel.

*2. ATF error voltage input.

*3. Approximately 30Hz.

*4. Approximately 360Hz.

*5. Approximately 672Hz during REC/PB (SP) mode.

*6. Four frequencies are output as synchronized with the rotation of the drum.
f1=102.54kHz, f2=118.95kHz, f3=165.21kHz, f4=148.69kHz

*7. f1(102.54kHz) or f3(165.21kHz) is output.

*8. “High” pulse when tape is delivered.

*9. “Low” pulse when tape is delivered.

*10. PWM signal with a period.

*11. Normally “High”. Temporarily “Low” when a full top cassette is loaded (drum reverse rotation).

6-3. MECHANICAL CONTROL MICRO COMPUTER CXP87140 (MA-173 BOARD IC003) PORT FUNCTION DESCRIPTION

Pin No.	Signal	I/O	Function
1	VIRS	O	Teletext killer.
2	JOG VD	O	Pseudo V timing output in speed change playback mode.
3	DICHG	O	Video memory write control.
4	JOG	O	"H" in speed change playback mode.
5	RP PB MODE	O	"L" in any mode other than record mode.
6	FEON	O	"L" when flying erase is turned ON.
7	INTERNAL VD	O	Internal VD.
8	SP	O	"H" in SP mode.
9	XENV REQ	O	Envelope detect waveform control.
10	TRSW	I	Tray open/close button input.
11	N. C.	I	N. C.
12	PCM ACT	I	"H" when PCM is effective.
13	C DOWN SW	I	Cassette down switch input.
14	REC PRF SW	I	Picture record inhibit switch input.
15	ME MP SW	I	ME/MP switch input.
16	MPHG MP SW	I	MPHG/MP switch input.
17	8/9 SW	I	$8\mu/9\mu$ switch input.
18	10/13 SW	I	$10\mu/13\mu$ switch input.
19	MODE 3 SW	I	Mechanical deck MATRIX input.
20	MODE 2 SW	I	Mechanical deck MATRIX input.
21	MODE 1 SW	I	Mechanical deck MATRIX input.
22	MODE 0 SW	I	Mechanical deck MATRIX input.
23	STB	O	Strobe signal output to EVR.
24	WIDE CS	O	CS output to wide IC.
25	VIDEO CS	O	CS output to video IC.
26	VSC CS	O	CS output to VSC IC.
27	PCM CS	O	CS output to PCM IC.
28	MEMORY CS	O	CS output to memory control IC.
29	PCM SEL 1	O	Audio output control.
30	PCM SEL 2	O	Audio output control.
31	N. C.	O	N. C.
32	N. C.	O	N. C.
33	PCM PB	O	"H" in PCM playback mode.
34	N. C.	O	N. C.
35	INSEL 2	O	Input signal select.
36	INSEL 1	O	Input signal select.
37	AF REC	O	After record control.
38	TOP/END LED	O	Tape top/end sensor LED control.
39	GND		GND.
40	RESET	I/O	Reset input.
41	VSS		GND.
42	16M XTAL	O	X'tal 16MHz.
43	16M EXTAL	I	X'tal 16MHz.
44	$\overline{\text{COSMO CS}}$	I	CS input for communication with MC microcomputer.
45	SI BUS	I	Data input for communication with MC microcomputer.
46	SO BUS	O	Data output for communication with MC microcomputer.
47	$\overline{\text{SCK}}$	I	Clock input for communication with MC microcomputer.
48	TR LOAD	O	Tray in control output.
49	TR UNLOAD	O	Tray out control output.
50	HI8 DET	I	HI8 determination input.
51	AFM MODE DET	I	Audio multiplex discrimination input.
52	A VSS		Analog GND.
53	A VREF		Analog reference 5V.
54	A VDD		Analog VDD 5V.
55	TR IN	I	Tray state switch input (IN). Analog input.
56	TR OUT	I	Tray state switch input (OUT). Analog input.
57	PB SP DET	I	In playback mode, SP/LP discrimination input is "H" for SP. Analog input.
58	N. C.	I	N. C.
59	TOP S	I	Tape top determination input. Analog input.
60	END S	I	Tape end determination input. Analog input.
61	ATF ERR	I	ATF error input. Analog input.
62	THERM	I	Temperature compensation input. Analog input.
63	N. C.	I	N. C.
64	S REEL F6	I	S reel FG input.
65	CLOG DET	I	Clog detect input.
66	DI SYNC	I	Composite sync input.
67	T REEL FG	I	T reel FG input.
68	DRUM PG	I	Drum PG input.
69	DRUM FG	I	Drum FG input
70	CAP FG	I	Capstan FG input.
71	V MUTE	O	Video mute output.
72	AFM MUTE	O	AFM MUTE output.
73	MECHA INH	O	Output signal which is supplied during mechanism transit.
74	DRUM RVS	O	Drum direction control output.
75	CAP PWM	O	PWM output for capstan.
76	DRUM PWM	O	PWM output for drum.
77	HMS CAP FG	I	Capstan FG input for HMS counter.

Pin No.	Signal	I/O	Function
78	ATF CLK	O	Output for ATF clock.
79	C SI2	I	Communication data input for specific peripheral IC.
80	C SO2	O	Communication data output for specific peripheral IC.
81	C SCK2	O	Communication clock output for specific peripheral IC.
82	AFM OUTSEL	O	AFM output control "H" , "L" and "M" levels.
83	AFM MODE	O	AFM mode control "H" , "L" and "M" levels.
84	AUDIO PB	O	"H" in audio playback mode.
85	REF PILOT	O	ATF pilot output.
86	XTAL	I	X'tal 12MHz.
87	EXTAL	O	X'tal 12MHz.
88	VSS	O	GND.
89	VDD	O	+5V.
90	N. C.	O	N. C.
91	CAP ON	O	Capstan ON signal.
92	CAP FWD	O	Capstan direction select signal.
93	DRUM ACC	O	Drum acceleration signal.
94	DRUM BRK	O	Drum brake signal.
95	CAM LOAD	O	Cassette compartment motor control.
96	CAM UNLOAD	O	Cassette compartment motor control.
97	EDIT	O	"L" in edit mode.
98	VA PB MODE	O	"H" in playback mode.
99	RF SWP	O	RF switching pulse output.
100	FERA	O	Flying erase REC area.

6-4. MODE CONTROL MICRO COMPUTER MB89096 (MA-173 BOARD IC002) PORT FUNCTION DESCRIPTION

Pin No.	Signal	I/O	Function
1	XTAL 32K	O	32KHz oscillator connecting pin.
2	EXTAL 32K	I	
3	MOD 0	I	Connected to ground.
4	MOD 1	I	Connected to ground.
5	XTAL 12M	O	12MHz main oscillator connecting pin.
6	EXTAL 12M	I	
7	VSS		GND.
8	MC RESET	I	Reset signal input (from TT OSDμ-com).
9	LANC P CONT	O	LANC IC power control.
10	S/LINE	O	Switch output between Line Video input and S/V.
11	SAP/MAIN	O	AFM SAP/MAIN select output.
12	TUNER ON	O	At tuner on : "H".
13	AUTO PRESET	O	At auto preset : "H".
14	COSMO CS	O	CS output for communications with system control.
15	COSMO REST	O	System control reset signal output.
16	HITT CS	O	TT microcomputer chip select signal.
17	POWER FAIL	I	Power failure detect input.
18	CG VD	I	V sync signal input.
19	TIME ON LINE	O	Timer on line output.
20	N. C.	I	N. C.
21	N. C.	O	N. C.
22	N. C.	O	N. C.
23	STEREO	I	Tuner audio mode input.
24	SAP	I	Tuner audio mode input.
25	HI8 LED	O	HI8 LED control.
26	N. C.	O	N. C.
27	REC LED	O	REC LED control.
28	C MOD		Connected to GND.
29	TV/VTR	O	TV/VTR select output.
30	SYS RESET	O	SYSTEM RESET OUTPUT.
31	TIMER LED	O	TIMER REC LED control.
32	SIRCS IN	I	SIRCS signal input.
33	LANC WP	I	LANC wakeup pin.
34	EVR STB	O	D/A strobe signal for EVR (MA-173 board IC010).
35	N. C.	O	Not used.
36	JOG 1	I	JOG dial port input.
37	JOG 2	I	JOG dial port input.
38	MC V OUT	O	V sync signal output.
39—48	S01—S10	O	Not used.
49	VCC		+5V.
50—52	S11—S13	O	Not used.
53	VFDP		Connected to GND.
54—57	S14—S17	O	Not used.
58	VSS		GND.
59—66	S18—S20	O	Not used.
67	VCC		+5V.
68—74	G07—G01	O	Not used.
75	N. C.	O	N. C.
76	F MONO	O	Tuner audio select control signal "H" : forced MONO.
77	MC SI	I	Serial data input.
78	MC SO	O	Serial data output.
79	MC SCK	O	Clock output for serial communication.
80	MEM CS	O	EEPROM chip select signal output (MA-173 board IC004).
81	MEM CLK	O	EEPROM clock output (MA-173 board IC004).
82	MEM DATA	I/O	EEPROM data input/output (MA-173 board IC004).
83	AVSS		GND.
84—91	A/D0—A/D7	I	A/D input for key read.
92	AVCC		+5V.
93	DEST	I	Connected to GND.
94	S SW INPUT	I	S terminal input determination detect input. (LINE 2)
95	N. C.	O	N. C.
96	N. C.	O	N. C.
97	LANC IN	I	LANC input.
98	LANC OUT	O	LANC output.
99	TA MUTE	O	U/V tuner mute.
100	VCC		+5V.

6-5. TIMER/TUNER CONTROL MICRO COMPUTER MB89096 (FM-16 BOARD IC101) PORT FUNCTION DESCRIPTION

Pin No.	Signal	I/O	Function
1	XTAL 32K	O	32kHz oscillator connecting pin.
2	EXTAL 32K	I	
3	MOD 0	I	Connected to ground.
4	MOD 1	I	Connected to ground.
5	XTAL 12M	O	12MHz main oscillator connecting pin.
6	EXTAL 12M	I	
7	VSS		GND.
8	RESET SW	I/O	Reset signal input.
9	PLL ENABLE	O	Enable output for U/V tuner frequency setting.
10	PLL DATA	O	Data output for U/V tuner frequency setting.
11	PLL CLOCK	O	Clock output for U/V tuner frequency setting.
12	N. C.	O	Not used.
13	N. C.	O	N. C.
14	TIME AF REC LED	O	Time code after record LED control output.
15	MC RESET	O	Reset output for MC microcomputer which is driven "L" to reset.
16	HITT CS	I	CS input for communications with MC microcomputer.
17	POWER FAIL	I	Power failure detect input which is driven "L" when power failure is detected.
18	V SYNC	I	V synchronize output from MC microcomputer.
19	TUNER V DET	I	V detect input from U/V tuner.
20	CG CS	O	CS output for character generator control.
21	AF REC LED	O	PCM after record LED control output.
22	POWER FAIL OUT	O	Power failure detect output which is driven "L" when power failure is detected.
23	N. C.	O	N. C.
24	VB LED	O	Voice boost LED control.
25	CASSET LED	O	Cassette in LED control.
26	N. C.	O	N. C.
27	N. C.	O	N. C.
28	0V		Connected to ground.
29	MC SO	I	Data input for communications with MC microcomputer.
30	MC SI	O	Data output for communications with MC microcomputer.
31	MC SCK	I	Clock input for communications with MC microcomputer.
32	LCD CS	O	CS output for LCD controller.
33	N. C.	O	N. C.
34	CG V DET	I	Signal presence determination input (Blue back).
35	N. C. (LCD BL CONT)	O	Fixed "L" in the present.
36	N. C.	O	N. C.
37	N. C.	O	N. C.
38	POWER CONT	O	Power on : H.
39—48	S01—S10	O	FDP segment 01—10/Display tube control signal.
49	VCC		+5V.
50—52	S11—S13	O	FDP segment 11—13/Display tube control signal.
53	VFDP		—Votage for display tube.
54—57	S14—S17	O	FDP segment 14—17/Display tube control signal.
58	VSS		GND.
59—61	S18—S20	O	FDP segment 18—20/Display tube control signal.
62—66	G12—G08	O	FDP grid 12—08/Display tube control signal.
67	VCC		+5V.
68—74	G07—G01	O	FDP grid 07—01/Display tube control signal.
75	N. C.	O	N. C.
76	N. C.	O	N. C.
77	TT OSD SI	I	Serial data input (for character generator, VPS and LCD).
78	TT OSD SO	O	Serial data output (for character generator, VPS and LCD).
79	TT OSD SCK	O	Serial communication clock output. (for character generator, VPS and LCD)
80	MEM CS	O	EEPROM chip select signal output. (FM-16 board IC103)
81	MEM CLK	O	EEPROM clock output. (FM-16 board IC103)
82	MEM DATA	I/O	EEPROM data in/output. (FM-16 board IC103)
83	AVSS		GND.
84	AFT IN	I	V/C signal AFT input.
85	N. C.	I	N. C.
86	N. C.	O	N. C.
87	N. C.	O	N. C.
88	PCM LED	O	PCM LED control.
89	HiFi LED	O	HiFi LED control.
90	TBC LED	O	TBC LED control.
91	DNR LED	O	DNR LED control.
92	AVCC		+5V.
93	N. C.	O	N. C.
94	STANDBY LED	O	Edit standby LED control.
95	N. C.	O	N. C.
96	REMOTE LED	O	Remote LED control.
97	N. C.	O	N. C.
98	N. C.	O	N. C.
99	BUZZER OUT	O	Buzzer out.
100	VCC		+5V.

6-6. PCM/AFM AUDIO OUTPUT CONTROL

1) PB MODE OUTPUT CONTROL

1-1) PCM POSITION (AUDIO MONITOR SW)

PCM ON/OFF	PCM ID	AFM MODE DET	DISPLAY	OUTPUT PATTERN (MA-173 BOARD)						
				PCM SEL1 IC003㉙	PCM SEL2 IC003㉚	OUT SEL3 IC001⑰	OUT SEL4 IC001⑯	AFM OUT SEL IC003(82)	AFM MUTE IC003(72)	AFM MODE IC003(83)
ON	STEREO	—	STEREO	H	H	L	L	—	H	—
	MONO	—	—	H	H	L	L	—	H	—
OFF	—	L	STEREO	L	L	L	L	L	L	M
	—	M	—	L	L	L	L	H	L	M

1-2) MIX POSITION (AUDIO MONITOR SW)

PCM ON/OFF	PCM ID	AFM MODE DET	DISPLAY	OUTPUT PATTERN (MA-173 BOARD)						
				PCM SEL1 IC003㉙	PCM SEL2 IC003㉚	OUT SEL3 IC001⑰	OUT SEL4 IC001⑯	AFM OUT SEL IC003(82)	AFM MUTE IC003(72)	AFM MODE IC003(83)
ON	STEREO	L (STEREO)	STEREO	H	H	L	L	L	L	M
		M (MONO)	STEREO	H	H	L	L	H	L	M
	MONO	—	No display	H	H	L	L	H	L	M

1-3) MIX POSITION (AUDIO MONITOR SW) STD POSITION

PCM ON/OFF	PCM ID	AFM MODE DET	DISPLAY	OUTPUT PATTERN (MA-173 BOARD)						
				PCM SEL1 IC003㉙	PCM SEL2 IC003㉚	OUT SEL3 IC001⑰	OUT SEL4 IC001⑯	AFM OUT SEL IC003(82)	AFM MUTE IC003(72)	AFM MODE IC003(83)
OFF	—	L	STEREO	L	L	L	L	L	L	M
	—	M	—	L	L	L	L	H	L	M

- See EE mode when in after record mode.

2) EE MODE OUTPUT CONTROL

INPUT STEREO MODE	AUDIO MONITOR SW	DISPLAY	OUTPUT PATTERN (MA-173 BOARD)						
			PCM SEL1 IC003㉙	PCM SEL2 IC003㉚	OUT SEL3 IC001⑰	OUT SEL4 IC001⑯	AFM OUT SEL IC003(82)	AFM MUTE IC003(72)	AFM MODE IC003(83)
TUNER MONO	PCM	—	H	H	L	L	H	H	L
	MIX		H	H	L	L	H	L	L
	STD		L	L	L	L	H	L	L
TUNER ST LINE ST	PCM	STEREO	H	H	L	L	L	H	H
	MIX		H	H	L	L	L	L	H
	STD		L	L	L	L	L	L	H

- "ATM MUTE" is to be driven "H" when After Record (including After Record PAUSE) is selected.
- Disp HiFi is lit when STEREO is displayed. However, it is lit off when After Record (including PAUSE) is selected.
- Whether Playback or REC System is selected, the "AFM MIX" port is driven "H" when the Audio Monitor switch is placed in MIX. Otherwise, it is driven "L".
- EE System is followed in SHUTTLE EDIT mode.
- Each signal has the levels shown below.
  AFM OUTSEL …H=4.0V or more, M=2.0 to 2.7V, L=0.8V or less.
  AFM MODE DET…H=3.4V to 4.75V, M=1.5 to 2.6V, L=0 to 0.8V.
  AFM MODE …H=4.0V or more, M=2.0 to 2.7V, L=0.8V or less.
- In MUTE mode,
  OUTSELL 1, 2="L", AFM MUTE="H"

3) INPUT SELECT CONTROL

MA-173 BOARD	LINE1	LINE2	TUNER
INSEL1 (IC003㊱)	H	L	L
INSEL2 (IC003㉟)	L	H	L

- H=4V or more, L=0.8V or less

4) SAP INPUT SELECT CONTROL

SAP BROADCASTING ON/OFF	MENU (SET UP MENU) "SAP"	DISPLAY	MA-173 BOARD	
			SAP/MAIN IC002⑪	AFM MODE IC003(83)
SAP ON	AUTO	SAP	H	L
	OFF	—	L	⁎
SAP OFF	AUTO	—	L	⁎
	OFF	—	L	⁎

Note) ⁎ : Set by main audio mode. (MONO: L, STEREO: H)

SECTION 7
ADJUSTMENTS

〈SERVICE MODE〉

☆This unit uses the EVR (Electronic Variable Resistor) for performing adjustments and tests. These functions are implemented by the SENSER LANC system.

1. SENSER LANC

SENSER LANC is the LANC format designed to perform EVR (electronic variable resistor) adjustments and various tests for this 8mm VTR by using the LANC (Control L). The SENSER LANC is synonymous with the old SERVICE LANC. But there have been enhancements and the SENSER LANC is now used as a unified word.

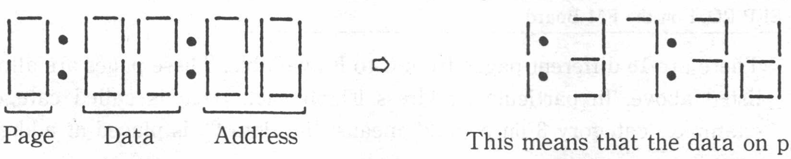
2. HOW TO USE THE RM-95 JIG (ADJUSTMENT REMOTE CONTROL)

The RM-95 jig is used to operate the SENSER LANC. This jig will create the SENSER LANC Mode. Because of this, the HOLD switch has been modified for service purpose.

Note that the old models of the RM-95 have no page display function and it is needed to replace their microcomputers within these old models.

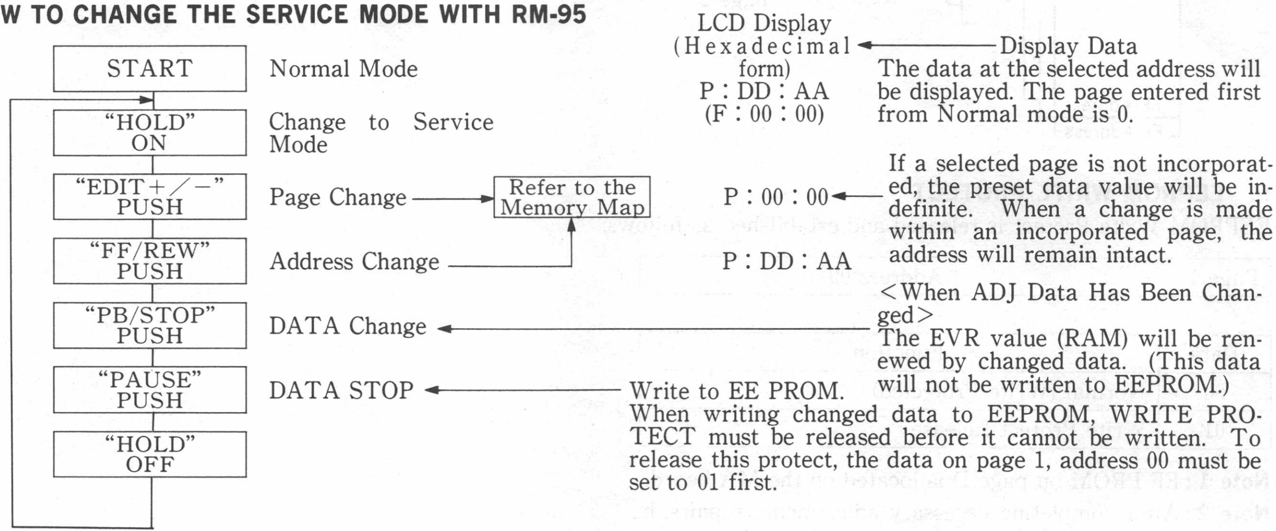
Old	μPD7503G-A71-12 μPD7503G-C23-12	8-759-142-56 8-759-146-77	No Page display (The microcomputer must be replaced.)
New	μPD7503G-C56-12	8-759-148-35	Page display

LCD Display of RM-95


Example
0:00:00
1:37:3d
Page
Data
Address

This means that the data on page 1, address 3D is 37.

3. HOW TO CHANGE THE SERVICE MODE WITH RM-95


START
Normal Mode
"HOLD" ON
Change to Service Mode
"EDIT+/−" PUSH
Page Change
Refer to the Memory Map
"FF/REW" PUSH
Address Change
"PB/STOP" PUSH
DATA Change
"PAUSE" PUSH
DATA STOP
"HOLD" OFF
LCD Display (Hexadecimal form)
P : DD : AA
(F : 00 : 00)
Display Data
P : 00 : 00
P : DD : AA
Write to EE PROM.

The data at the selected address will be displayed. The page entered first from Normal mode is 0.

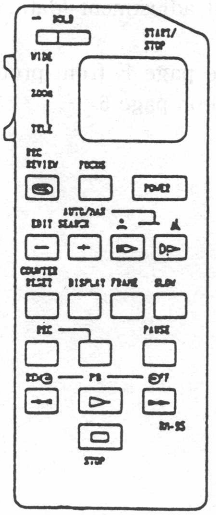
If a selected page is not incorporated, the preset data value will be indefinite. When a change is made within an incorporated page, the address will remain intact.

<When ADJ Data Has Been Changed>
The EVR value (RAM) will be renewed by changed data. (This data will not be written to EEPROM.)

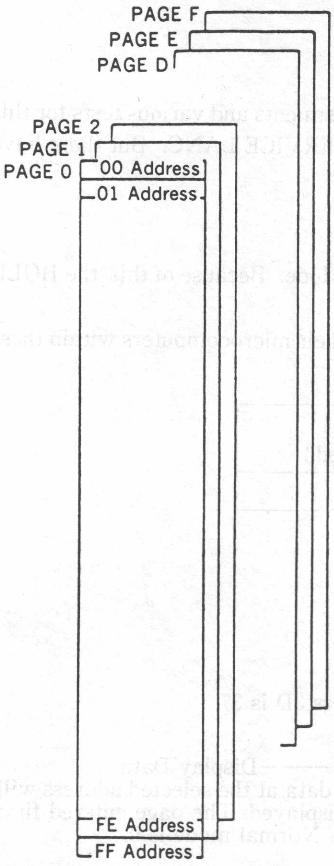
When writing changed data to EEPROM, WRITE PROTECT must be released before it cannot be written. To release this protect, the data on page 1, address 00 must be set to 01 first.

Command	Action	RM-95 Control Button Pushed
Page Up	Page+1	Edit Search+
Page Down	Page−1	Edit Search−
Address Up	Address+1	Fast Forward
Address Down	Address−1	Rewind
Data Up	Data+1	Play Back
Data Down	Data−1	Stop
Store	Writes data to EEPROM. RAM	Pause

RM-95 (J-6082-053-B)


HOLD
START/STOP
WIDE
ZOOM
TELE
REC REVIEW
FOCUS
POWER
AUTO/MAN
EDIT SEARCH
COUNTER RESET
DISPLAY
FRAME
SLOW
REC
PAUSE
PB
STOP
RM-95

4. SENSER LANC MEMORY MAP



This unit has pages 0 to F allocated as listed below.

PAGE	Page Allocation
0	
1	D Page Protect Release
2	
3	
4	
5	
6	F Page Protect Release
7	
8	
9	
A	
B	
C	
D	EEPROM on the MA Board
E	
F	EEP ROM on the FM Board

Note) There are 16 different pages from C to F available. These pages are allocated as listed above. In particular, address 00 on each page is called category. For example, "category 3 on page 2" means that data 03 is placed at address 00 on page 2.

5. EEPROM WRITE PROTECT

EEPROM Write Protect is released and established as follows:

Page 1	Address 00

Data	Function
00	Normal (Write Protected)
01	Write Protect Release

Note 1 : EE-PROM on page D is located on the MA board.

Note 2 : After completing necessary adjustments/repairs, be sure to return the data at this address to 00.

Note 3 : No special adjustment (data write) is required for page F.
To release page F from protection, write 01 onto address 00 on page 6.

6. TEST MODE SETTING

Page 3	Address 01

Data	Function
01	Track Shift Playback ● Automatic discrimination between SP and LP is also inhibited and REC SP/LP is followed. ● Data at address 08 in category 2 should be changed if you want to change track shift amount.

Page B	Address 10

Data	Function
06	Clock Adjustment ● When 2F is written to address 23 in category 0 in port check mode, BUZZER OUT will oscillate at 4096Hz.

7. EMERGENCY CODES

These codes can be used to check the condition of failure (abnormality) that occurred.

Page D	Address EC

First Emergency Code
…The code of the first failure that occurred.

Page D	Address E8

Second Emergency Code
…The code of the second failure that occurred.

Page D	Address E4

Last Emergency Code
…The code of the last failure that occurred (This data will be renewed each time a failure occurs.

Note 1 : After completing necessary adjustments/repairs, be sure to rewrite the data address EC, E8 and E4 to 00.

Note 2 : When writing data, after setting the data, be sure to press the PAUSE button on the adjustment remote control.

Code	Condition of Failure
00	No failure
10	Load Direction, Cam Encoder Failure
11	Unload Direction, Cam Encoder Failure
22	T Reel Rotational Failure
23	S Reel Rotational Failure
24	FG Failure at Start of T Reel
25	FG Failure at Start of S Reel
30	Failure at Start of Capstan
31	Failure During Stationary Operation of Capstan
40	FG Failure at Start of Drum
41	PG Failure at Start of Drum
42	FG Failure During Stationary Operation of Drum
60	FL Cassette Compartment Failure
70	DEW EJECT Failure

8. D PAGE MEMORY MAP

Note) When replacing EEPROM on the MA board, set data on page D as follows.

Address	Function	Initial Value	Memo Column
00		00	
01		00	
02			
03	Adjustment Mode	04	
04	Switching Position Adjustment (LOW)	Adjustment	
05	Switching Position Adjustment (HIGH)	Adjustment	
06			
07		7C	
08		56	
09		AD	
0A		39	
0B		39	
0C		39	
0D		39	
0E		FD	
0F		39	
10		21	
11		22	
12		10	
13	SP/LP Voltage Adjustment	Adjustment	
14			
15			
16			
17	Capstan Duty Adjustment	Adjustment	
18	PB VCO Adjustment	Adjustment	
19			
1A	FF VCO Adjustment	Adjustment	
1B	REW VCO Adjustment	Adjustment	
1C	High Speed FF VCO Adjustment	Adjustment	
1D	High Speed REW VCO Adjustment	Adjustment	
1E			
1F			
20			
21			
22			
23			
24			
25			
26			
27			
28		7C	
29		56	
2A		AD	
2B			
2C		7C	
2D		56	

Address	Function	Initial Value	Memo Column
2E		2D	
2F			
30−DF	Not used		
E0			
E1			
E2			
E3			
E4	Emergency Code (LAST)	00	
E5		00	
E6		00	
E7		00	
E8	Emergency Code (2nd)	00	
E9		00	
EA		00	
EB		00	
EC	Emergency Code (1st)	00	
ED		00	
EE		00	
EF		00	
F0			
F1			
F2			
F3			
F4			
F5			
F6			
F7			
F8			
F9			
FA			
FB			
FC			
FD			
FE			
FF			

7-1. MECHANICAL ADJUSTMENTS

For Mechanical Adjustments

For the procedures how to adjust and check the mechanism, as well as how to replace mechanical parts, refer to the separate 8mm Video Mechanical Adjustment Manual V (9-973-445-11).

However, for the procedures how to set the Track Shift mode, refer to the following text.

1-1. TAPE PATH ADJUSTMENT

〔TRACK SHIFT〕

The 8mm Video Tape Recorder system uses the AFT (Automatic Track Finding) function in which four different pilot signals are used for controlling the tape speed instantaneously to provide high precision tracking. This eliminates the Tracking Adjustment control, thus allowing accurate tracing.

In spite of its advantageous feature, the AFT system may have a difficulty in adjusting the tape path system. The ATF will automatically corrects tracing even if the head has only a little tracing distortion. This may make it impossible to perform a complete adjustment.

Therefore, when performing a fine adjustment for tracking, the Track Shift mode should be entered before starting this adjustment. This mode will force to operate the ATF to shift the amount of tracking by a given quantity (approximately 1/4), so that tracking can be easily fine adjusted. Furthermore, no track shift jig is needed.

1-1-1. Setting the Track Shift Mode

1) Place the adjustment remote control RM-95 (J-6082-053-B) in the HOLD ON position.
2) Operate the EDIT +/— button to select adjustment page 3.
3) Operate the FF/REW button to select adjustment address 00.
4) Operate the PB/STOP button to set to adjustment data 02.
5) Operate the FF/REW button to select adjustment address 01.
6) Operate the PB/STOP button to set to adjustment data 01. (This will go to the Track Shift Playback (Path Adjustment).)

Note 1 : If the LP mode is recognized by the system wrongly, operate the Recording Time SP/LP button to enter the SP mode.

Note 2 : After adjustment, operate the PB/STOP button to reset to adjustment data 00. Place the remote control in the HOLD OFF position to return to the normal mode.

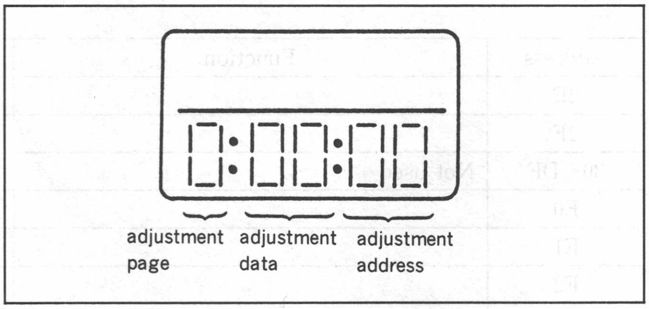


Fig. 7-1-1.

1-1-2. Preparation before Adjustment

1) Clean the surfaces over which tape moves past (of the tape guides, drum, capstan shaft and pinch rollers).
2) Oscilloscope Connection and Waveform Output:
   1 ch: Drum head's RF signal output, RP-165 board CN001 pin ③ (PB Y)
   External trigger input: RP-165 board CN001 pin ② (RF SWP)
   GND: RP-165 board CN001 pin ① (GND)
3) Play back alignment tape for tracking (WR5-1NP).
4) Check that RF waveform observed on the oscilloscope is flat on both entrance and exit sides.
   If not flat, perform necessary adjustment according to the separate 8 mm Video Mechanical Adjustment V.

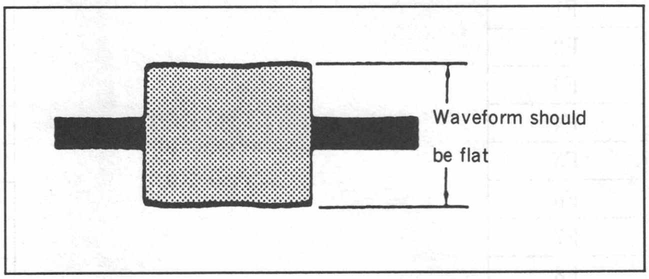


Fig. 7-1-2.

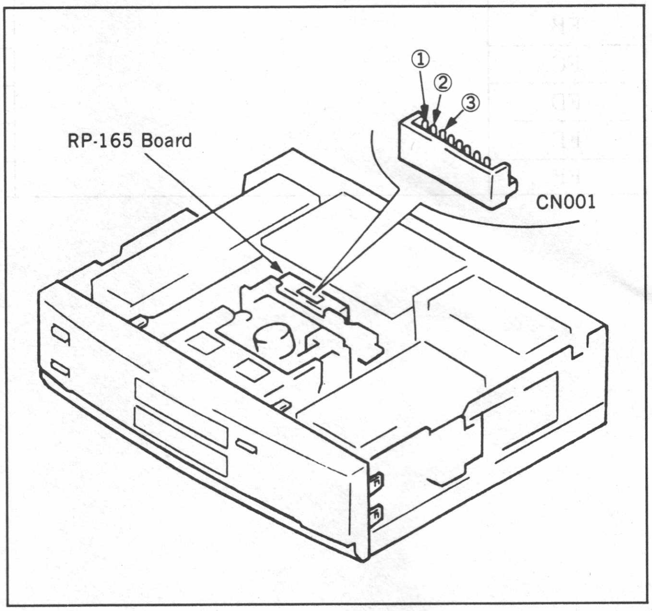


Fig. 7-1-3.

7-2. ELECTRICAL ADJUSTMENTS

See the adjusting part location diagram from on page 7-36 for the adjustment.

For details of the SENSER LANC , refer to "7 SERVICE MODE".

2-1. PREPARATION BEFORE ADJUSTMENT

2-1-1. Equipment Required

The measuring instruments used for this alignment include :

1) Monitor TV
2) Oscilloscope, dual-trace, bandwidth of 30MHz or more, with delay mode (A probe 10:1 should be used unless otherwise specified.)
3) Frequency counter
4) Pattern generator (with Video Output terminal; refer to Section 7-2-1. Equipment Connection.)
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Vector scope
11) Alignment tapes
    - For tracking adjustment (WR5-1NP)
      Part No.: 8-967-995-02
    - For video frequency adjustment (WR5-7NE)
      Part No.: 8-967-995-13
    - For L mode operation check
      For SP (WR5-5NSP)
      Part No.: 8-967-995-42
      or (WR5-4NSP)
      Part No.: 8-967-995-41
      For LP (WR5-4NL)
      Part No.: 8-967-995-51
    - For E mode operation check (ME tape)
      For SP (WR5-8NSE)
      Part No.: 8-967-995-43
      For LP (WR5-8NLE)
      Part No.: 8-967-995-52
    - For AFM stereo operation check (WR5-9NS)
      Part No.: 8-967-995-23
12) Adjustment remote control (J-6082-053-B)

2-1-2. Equipment Connection

According to the specification of the input terminal (S VIDEO or VIDEO), connect required measuring instruments as shown in Fig. 7-2-1. and perform adjustment. The input terminal is specified in the parentheses ( ) in the signal column. Unless otherwise specified, either terminal may be used. Note that the S VIDEO input terminal takes precedence. When performing adjustment with the VIDEO input terminal, pull out the connector from the S VIDEO input terminal.

Note 1 : When S VIDEO input is specified for a specific adjustment, if the adjustment is performed with VIDEO input, the product specifications for this unit may not be satisfied. The specified input must be always used.

Note 2 : If an adjustment is performed by using a VTR with S Video output terminal as a signal source, the performance of this unit will be affected by that VTR. A pattern generator with Y/C separation output terminal should be used wherever possible.

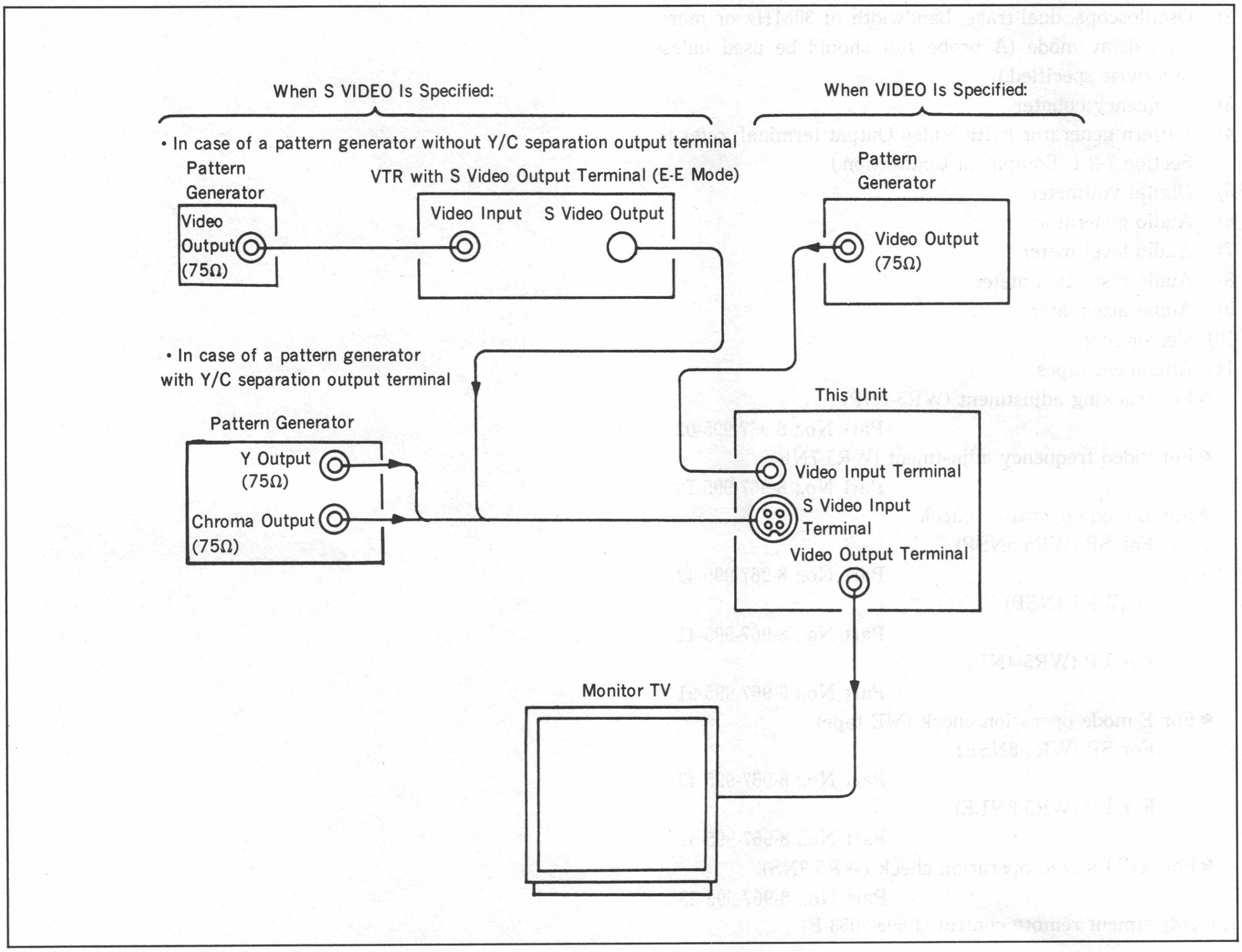

When S VIDEO Is Specified:
• In case of a pattern generator without Y/C separation output terminal
Pattern Generator
Video Output (75Ω)
VTR with S Video Output Terminal (E-E Mode)
Video Input
S Video Output
• In case of a pattern generator with Y/C separation output terminal
Pattern Generator
Y Output (75Ω)
Chroma Output (75Ω)
When VIDEO Is Specified:
Pattern Generator
Video Output (75Ω)
This Unit
Video Input Terminal
S Video Input Terminal
Video Output Terminal
Monitor TV

Fig. 7-2-1.

2-1-3. Input Signal Check

Video signal produced by a pattern generator is used as an adjustment signal to perform electrical alignment for this unit. This video signal must satisfy the specification.

1) S VIDEO Input

Connect an oscilloscope to the Y Signal terminal of the S Video Input terminal. Check that the synchronizing signal of the Y signal is approximately at 0.3Vp-p and that its video portion has an amplitude of approximately 0.7Vp-p. (When a VTR with S video output terminal is used, in addition to these checks, make sure that there are no residual chroma and burst signals.) Then, connect the scope to the Chroma signal terminal of the S Video Input terminal and check that the chroma signal has a burst signal amplitude of 0.3Vp-p and the burst signal waveform is flat. And check that the amplitude ratio of burst signal to chroma signal is 0.30 : 0.66. The Y and chroma signals used for electrical alignment are shown in Fig. 7-2-2.

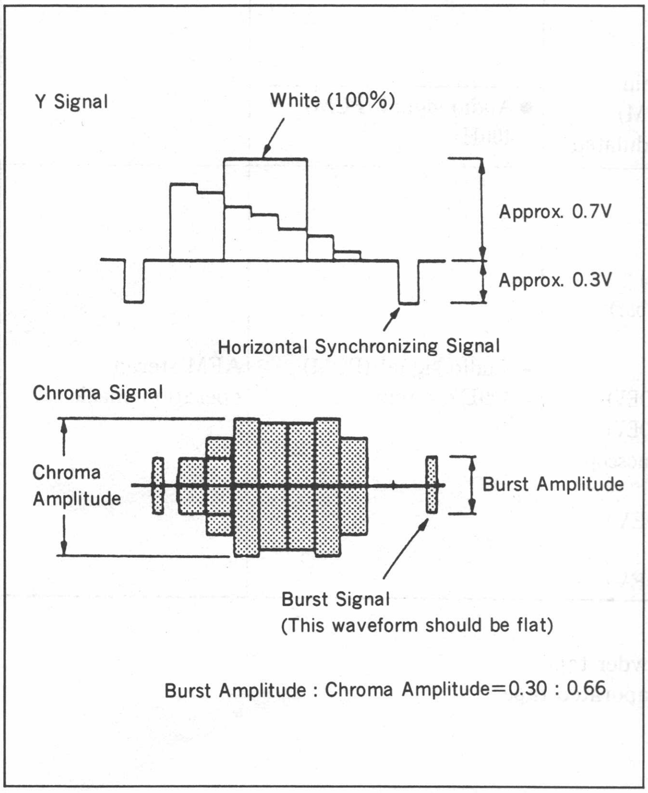

Y Signal
White (100%)
Approx. 0.7V
Approx. 0.3V
Horizontal Synchronizing Signal
Chroma Signal
Chroma Amplitude
Burst Amplitude
Burst Signal
(This waveform should be flat)
Burst Amplitude : Chroma Amplitude=0.30 : 0.66

Fig. 7-2-2. Color Bar Signals of Pattern Generator

2) VIDEO Input

Connect an oscilloscope to the Video Input terminal. Check that the synchronizing signal of the Y signal has an amplitude of approximately 0.7V and that the burst signal has an amplitude of approximately 0.3V and its waveform is flat. And check that the level ratio of burst signal to "red" signal is 0.30 : 0.66.

The video signal (color bar) used for electrical aligning this unit is shown in Fig. 7-2-3.

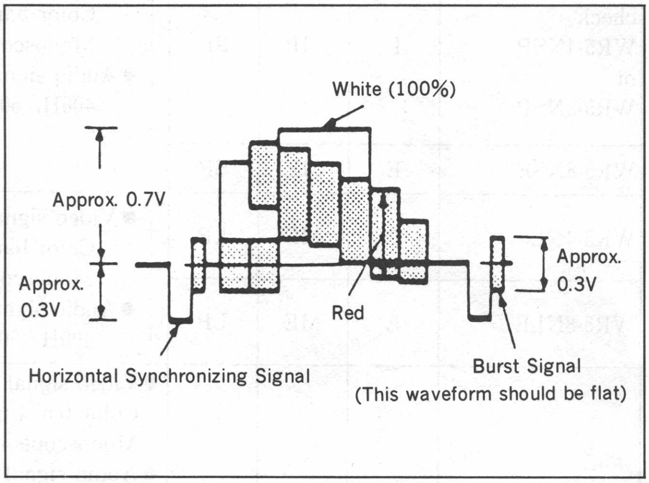

White (100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Horizontal Synchronizing Signal
Burst Signal
(This waveform should be flat)

Fig. 7-2-3. Color Bar Signals of Pattern Generator

2-1-4. Alignment Tapes

The following alignment tapes are available.
The tape specified in the signal column for the adjustment to be performed should be used.

Note that if no tape code is specificed for the adjustments in which alignment tapes for operation check are used, any tape for operation check may be used.

Alignment Tape	Record Mode	Tape Type	Tape Speed	Contents of Record		Applications
				Video Area	PCM Area	
Tracking WR5-1NP	L	MP	SP	CH2 : 1MHz tape pass adjustment signal Switching position adjustment marker (CH1 : 9MHz)		Tape pass adjustment Switching position adjustment
Video frequency characteristic WR5-7NE	E	ME	SP	RF sweep 0～15MHz Marker 2, 4.5, 7, 8.5, 10MHz		Frequency characteristic
Operation check WR5-4NSP or WR5-5NSP	L	MP	SP	● Video signal Color bar 4 min. Monoscope 4 min. ● Audio signal (AFM) 400Hz 60% modulated	● Audio signal (PCM) Monoscope portion 20Hz 20sec. 400Hz 20sec. 14kHz 20sec. } This cycle is repeated 4 times Color bar portion 1kHz, 4min.	
WR5-8NSE	E	ME	SP		Operation check	
WR5-4NL	L	MP	LP	● Video signal Color bar 4 min. Monoscope 4 min. ● Audio signal (AFM) 400Hz 60% modulated		
WR5-8NLE	E	ME	LP		● Audio signal (PCM) 400Hz	
AFM stereo operation check WR5-9NS	L	MP	SP	● Video signal Color bar 4 min. Monoscope 4 min. ● Audio signal (AFM) Stereo portion (color bar) Lch : 400Hz Rch : 1kHz (L+R 1.5MHz±60kHz DEV) (L−R 1.5MHz±30kHz DEV) Bilingual portion (monoscope) MAIN : 400Hz (1.5MHz±60kHz DEV) SUB : 1kHz (1.7MHz±30kHz DEV)	● Audio signal (PCM) 400Hz, 8 min.	AFM stereo operation check

Note : Recording Mode
L .... Conventional mode
E .... Hi 8 (High Band) mode

Tape Type
MP ..... Metal powder tape
ME ..... Metal evaporated tape

The color bar signal recorded on these alignment tapes are shown in Fig. 7-2-4.

Note : This waveform is measured at the VIDEO OUT terminal (terminated at 75Ω).

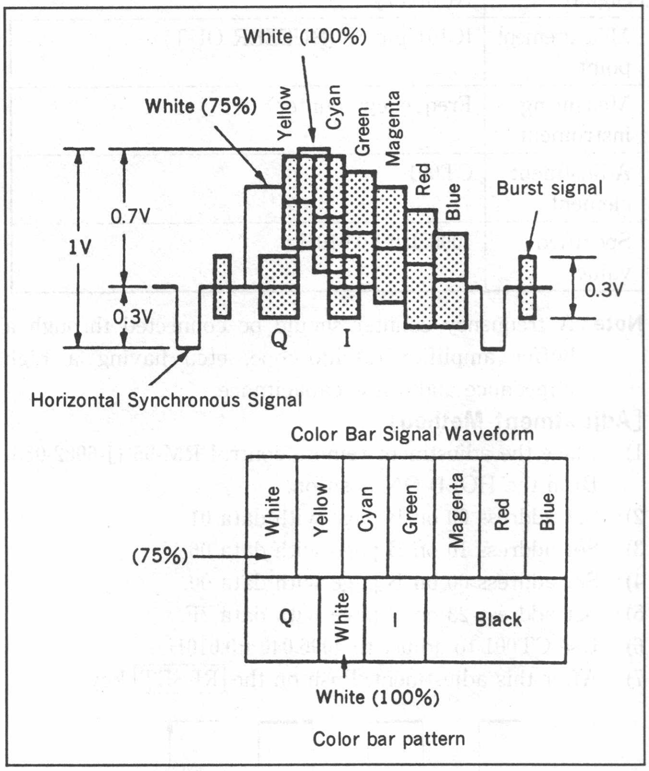

White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst signal
1V
0.7V
0.3V
0.3V
Q
I
Horizontal Synchronous Signal
Color Bar Signal Waveform
White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White
I
Black
White (100%)
Color bar pattern

Fig. 7-2-4. Color Bar Signal of Alignment Tape

2-1-5. Input/Output Levels and Impedance

Antenna

75-ohm asymmetrical antenna terminal for VHF/UHF

LINE IN 1 and 2

S VIDEO IN (4-pin mini DIN) 1 each

Y : 1 Vp-p 75ohms (unbalanced), sync negative

C : 0.286 Vp-p (color burst) 75 ohms (unbalanced)

VIDEO IN (phono jack) 1 each

Input signal : 1 Vp-p, 75 ohms (unbalanced), sync negative

AUDIO IN (phono jack) 2 each

Input level : −7.5 dBs

(0 dbs=0.775 Vrms)

Input impedance : more than 47 kilohms

LINE OUT 1 and 2

S VIDEO OUT (4-pin mini DIN)

Y : 1 Vp-p 75 ohms (unbalanced), sync negative

C : 0.286 Vp-p (color burst) 75 ohms (unbalanced)

VIDEO OUT (phono jack) 1 each

Output signal : 1 Vp-p, 75 ohms, (unbalanced), sync negative

AUDIO OUT (phono jack) 2 each

Output level : −7.5 dBs (0dbs=0.775 Vrms)

Output impedance : less than 10 kilohms

Microphone input

Minijack −60 dBs, for low impedance microphone

Headphone jack

Stereo minijack −26 dBs, 8 ohms

CONTROL S IN

Minijack

LANC

Stereo mini-minijack

2-2. POWER SUPPLY CHECK

2-2-1. Output Voltage Check (PS-313 Board)

Mode	E-E
Measurement instrument	Digital voltmeter
UN 13.5V check	
Measurement point	CN002 pin ①②, CN003 pin ⑤
Specified value	13.5±1.5Vdc
UN 5.8V check	
Measurement point	CN002 pin ⑤, CN003 pin ⑥⑦
Specified value	6.0±0.2Vdc
SW 5V check	
Measurement point	CN002 pin ⑥, CN003 pin ⑧
Specified value	5.0±0.2Vdc
UN −5V check	
Measurement point	CN003 pin ⑫
Specified value	−5.0±0.2Vdc
SW −5V check	
Measurement point	CN003 pin ⑪
Specified value	−5.0±0.2Vdc

[Check Method]

1) Each of these supply voltages must meet its specified value.

2-3. SYSTEM CONTROL SYSTEM ADJUSTMENTS

2-3-1. Timer Clock Adjustment (FM-16 Board)

Mode	E-E
Signal	Arbitrary
Measurement point	IC101 pin (99) (BUZZER OUT)
Measuring instrument	Frequency counter
Adjustment element	CT001
Specified value	4096.040±0.010Hz

Note : A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Adjustment Method]

1) Place the adjustment remote control RM-95 (J-6082-053-B) in the HOLD ON position.
2) Set address 00 on B page with data 01.
3) Set address 10 on B page with data 06.
4) Set address 00 on B page with data 00.
5) Set address 23 on B page with data 2F.
6) Use CT001 to adjust to 4096.040±0.010Hz.
7) After this adjustment, Push on the $\boxed{\text{RESET}}$ key.

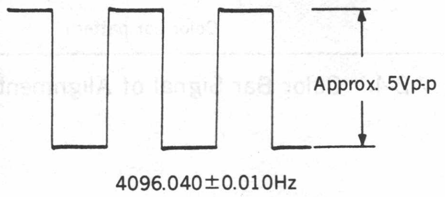


Fig. 7-2-5.

2-4. SERVO SYSTEM ADJUSTMENTS

[Adjustment sequence]

1. PWM Frequency Adjustment
2. Switching Position Adjustment
3. CAP Duty Adjustment
4. SP/LP Discrimination Check
5. SLOW Adjustment

2-4-1. PWM Frequency Adjustment (MA-173 Board)

Mode	Record
Signal	Arbitrary
Measurement point	IC302 pin ⑩
Measuring instrument	Frequency counter
Adjustment element	RV301
Specified value	475±25kHz

[Adjustment Method]

1) Set Recording Time to SP mode.
2) Use RV301 to adjust to 475±25kHz.
3) Set Recording Time to LP mode.
4) Check for at 475±25kHz.
5) If the specification is not met, repeat Steps 1) to 4).

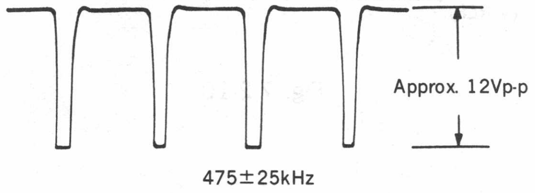


Fig. 7-2-6.

2-4-2. Switching Position Adjustment

Mode	Playback
Signal	Alignment tape: For operation check (WR5-1NP)
Measurement point	CH-1: RP-165 board CN001 pin ② (RF SWP) CH-2: RP-165 board CN001 pin ⑤ (PB RF 2CH)
Measuring instrument	Oscilloscope
Adjustment page	D
Adjustment address	05 04
Specified value	t=0±5μsec

[Adjustment Method]

1) Place the adjustment remote control RM-95 (J-6082-053-B) in the HOLD ON position.
2) Use EDIT+/− button to select adjustment page 1.
3) Use FF/REW button to select adjustment address 00.
4) Use PB/STOP button to set to adjustment data 01.
5) Press PAUSE button on the remote control to store the adjustment data.
6) Use EDIT+/− button to select adjustment page d.
7) Use FF/REW button to select adjustment address 05.
8) Operate PB/STOP button to change and set adjustment data so that t=0±255μsec.
9) Press PAUSE button on the remote control to store the adjustment data.
10) Use FF/REW button to select adjustment address 04.
11) Use FF/REW button to change and set adjustment data so that t=0±5μsec.
12) Press PAUSE button to store the adjustment data.

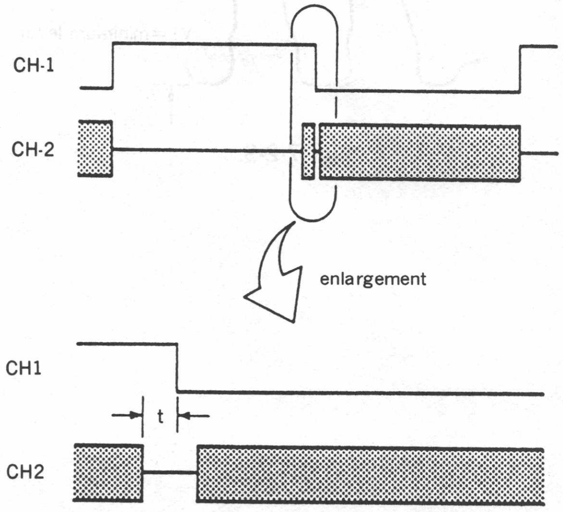


Fig. 7-2-7.

2-4-3. CAP Duty Adjustment

Mode	Record (LP mode)
Signal	Arbitrary
Measurement point	MA-173 board CN303 pin ① (CAP FG) and pin ② (CAP ERROR)
Measuring instrument	Oscilloscope
Adjustment page	D
Adjustment address	17
Specified value	$t_1 = t_2$

[Adjustment Method]

1) Place the adjustment remote control RM-95 (J-6082-053-B) in the HOLD ON position.
2) Set data at address 00 on page 1 to 01.
3) Change data at address 17 on page D and adjust so that $t_1 = t_2$ (50% duty).

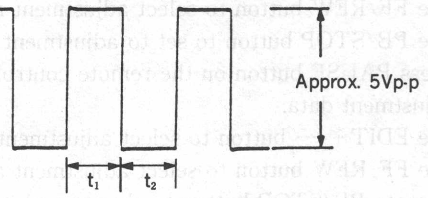


Fig. 7-2-8.

4) At this time, check that the V1 at pin ② level is minimum level.
5) Press PAUSE button to store the adjustment data.

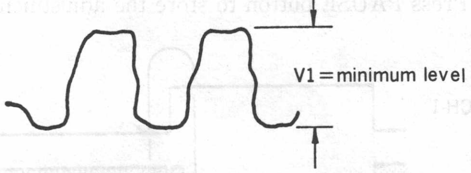


Fig. 7-2-9.

2-4-4. SP/LP Discrimination Check

(1) SP mode

Mode	Record (SP mode)
Signal	Arbitrary
Measurement point	MA-173 board CN303 pin ④ (SP/$\overline{\text{LP}}$ DET) and pin ⑤ (V REF)
Measuring instrument	Oscilloscope
Specified value	0.15Vp-p or more

[Check Method]

1) Connect CH1 of an oscilloscope with CN303 pin ④ and CH2 with CN303 pin ⑤.
2) Check the difference in voltage at between pin ④ and pin ⑤.
3) If the specification is not satisfied, with adjustment remoto control RM-95 (J-6082-053-B), change data at address 13 on page D and adjust so that the difference falls into the specified range.

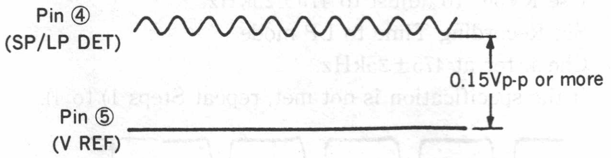


Fig. 7-2-10.

(2) LP mode

Mode	Record (LP mode)
Signal	Arbitrary
Measurement point	MA-173 board CN303 pin ④ (SP/$\overline{\text{LP}}$ DET) and pin ⑤ (V REF)
Measuring instrument	Oscilloscope
Specified value	0.35Vp-p or more

[Check Method]

1) Connect CH1 of an oscilloscope with CN303 pin ④ and CH2 with CN303 pin ⑤.
2) Check the difference in voltage at between pin ④ and pin ⑤.
3) If the specification is not satisfied, with adjustment remoto control RM-95 (J-6082-053-B), change data at address 13 on page D and adjust so that the difference falls into the specified range.
4) After adjustment, perform the discrimination check in SP mode again.

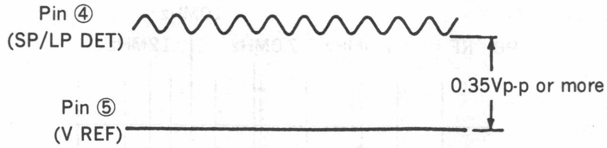


Fig. 7-2-11.

2-4-5. SLOW Adjustment

Mode	Self-record playback (SP and LP modes)
Signal	Color bar
Measurement point	CH-1: RP-165 board CN001 pin ② (RF SWP) CH-2: RP-165 board CN001 pin ③ (PB Y)
Measuring instrument	Oscilloscope
Adjustment page	D
Adjustment address	21 (SLOW TRACON DATA (LP)) 20 (SLOW TRACON DATA (SP)) 23 (−SLOW TRACON DATA (LP)) 22 (−SLOW TRACON DATA (SP))
Specified value	A=B

[Adjustment Method]

1) Record color bar signal in both SP and LP modes.
2) Play back the recorded signal.
3) Place the adjustment remote control in the HOLD ON position.
4) Use EDIT+/− button to select adjustment page d.
5) Use FF/REW button to select adjustment address 21.
6) Enter LP mode and check that the record is played back.
7) Use the remote commander or the EDIT SHUTTLE SLOW on the set to enter SLOW 1/5) mode.
8) Operate PB/STOP button on the remote control RM-95 to change and set adjustment data so that A=B.
9) Press PAUSE button on the remote control to store the adjustment data.
10) In the same manner, select adjustment address 20 for SP Mode SLOW (1/5) mode, adjustment address 23 for LP Mode −SLOW (−1/5) mode, and address 22 for SP Mode −SLOW (−1/5) mode and adjust so that A=B.

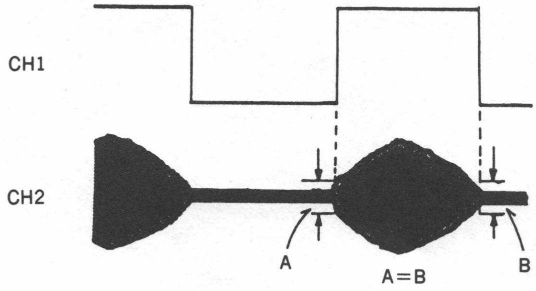


Fig. 7-2-12.

2-5. VIDEO SYSTEM ADJUSTMENTS

Color video signal supplied from a pattern generator is used as a video input signal for Video System Alignment in the Recording mode. This signal should be checked to ensure that it meets the specifications provided in Figs. 7-2-2 and 7-2-3 and "INPUT SIGNAL CHECK".

The adjustments in Video System Alignment should be performed in the following sequence.

[Adjustment sequence]

1. Playback Frequency Characteristic Adjustment
2. SYNC AGC Adjustment
3. Accel Y Level Adjustment
4. Accel C Level Adjustment
5. Chroma Comb Filter Adjustment
6. Pre-emphasis Input Level Adjustment
7. L Mode Y FM Carrier Frequency, Y FM Deviation Adjustment
8. E Mode Y FM Carrier Frequency, Y FM Deviation Adjustment
9. Chroma Emphasis Adjustment
10. L Mode De-emphasis Level Adjustment
11. L Mode Playback Level Adjustment
12. E Mode De-emphasis Level Adjustment
13. E Mode Playback Level Adjustment
14. Recording Chroma Level Pre Adjustment
15. Recording Y Level Adjustment
16. L Mode Recording Chroma Level Adjustment
17. E Mode Recording Chroma Level Adjustment
18. Y/Chroma Adjustment
19. Carrier Leak Adjustment

2-5-1. Playback Frequency Characteristic Adjustment (RP-165 Board)

Note : The designation 〔 〕 stands for adjustment on CH-2.

Mode	Playback
Signal	Alignment tape: for frequency characteristic adjustment (WR5-7NE)
Measurement point	CN001 pin ⑥ (PB RF 1CH) 〔CN001 pin ⑤ (PB RF 2CH)〕 External trigger: CN001 pin ② (RF SWP) Trigger slope:−〔+〕
Measuring instrument	Oscilloscope
Adjustment element	RV001 〔RV002〕
Specified value	4.5MHz level: 8.5MHz level=3 : (2±0.2)

[Adjustment Method]

1) Use RV001 〔RV002〕 to adjust so that the ratio of 4.5MHz level to 8.5MHz of PB RF output waveform is 3 : (2±0.2).

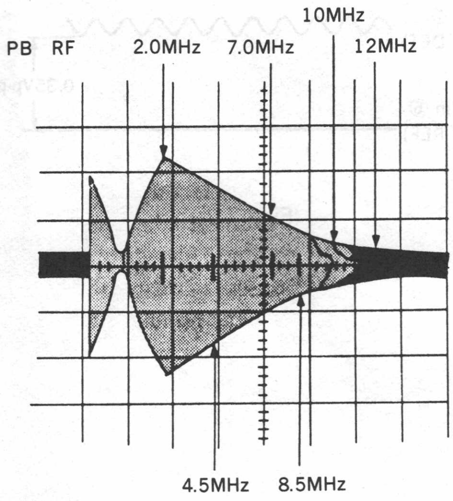


Fig. 7-2-13.

2-5-2. SYNC AGC Adjustment (VI-121 Board)

Mode	E-E
Signal	Color bar (S VIDEO)
Measurement point	CN101 pin ⑧ (DI Y (X))
Measuring instrument	Oscilloscope
Adjustment element	RV107
Specified value	1.00±0.05Vp-p

[Adjustment Method]

1) Use RV107 to adjust to 1.00±0.05Vp-p.

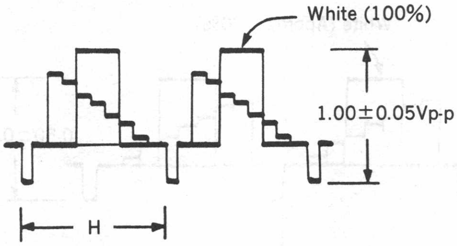


Fig. 7-2-14.

2-5-3. Accel Y Level Adjustment (VI-121 Board)

Mode	E-E
Signal	Color bar (VIDEO)
Measurement point	IC105 pin ㉚ (VIN 1)
Measuring instrument	Oscilloscope
Adjustment element	RV601
Specified value	0.50±0.02Vp-p

[Adjustment Method]

1) Use RV601 to adjust to 0.50±0.02Vp-p.

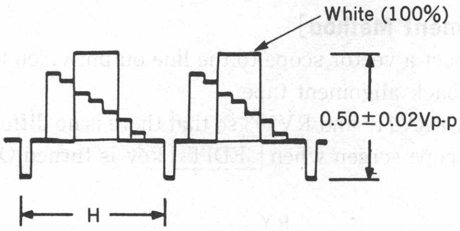


Fig. 7-2-15.

2-5-4. Accel C Level Adjustment (VI-121 Board)

Mode	E-E
Signal	Color bar (VIDEO)
Measurement point	CN101 pin ⑥ (VI C (X))
Measuring instrument	Oscilloscope
Adjustment element	RV602
Specified value	143±10mVp-p

[Adjustment Method]

1) Use RV602 to adjust to 143±10mVp-p.

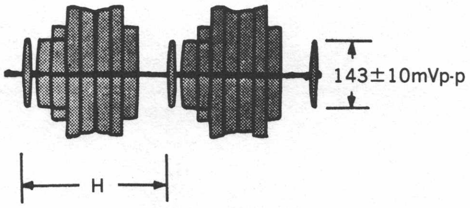


Fig. 7-2-16.

2-5-5. Chroma Comb Filter Adjustment (VI-121 Board)

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-5NSP)
Measurement point	Line Video out terminal
Measuring instrument	Vectorscope
Adjustment element	RV112 (GAIN) RV103 (PHASE)
Specified value	No difference on the scope screen when EDIT key is turned ON/OFF.

[Adjustment Method]

1) Connect a vector scope to the line output video terminal.
2) Playback alignment tape.
3) Adjust RV112 and RV103 so that there is no difference on the scope screen when EDIT key is turned ON/OFF.

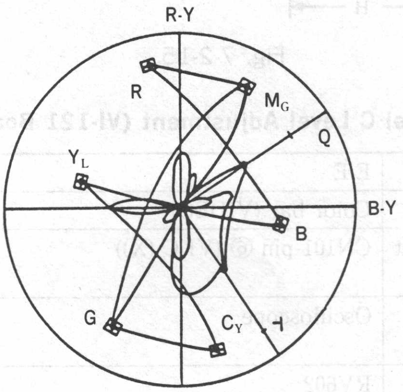


Fig. 7-2-17.

2-5-6. Pre-emphasis Input Level Adjustment (VI-121 Board)

Mode	E-E
Signal	Color bar (S VIDEO)
Measurement point	IC105 pin ⑤
Measuring instrument	Oscilloscope
Adjustment element	RV106
Specified value	0.50±0.02Vp-p

[Adjustment Method]

1) Use RV106 and adjust to 0.50±0.02Vp-p.

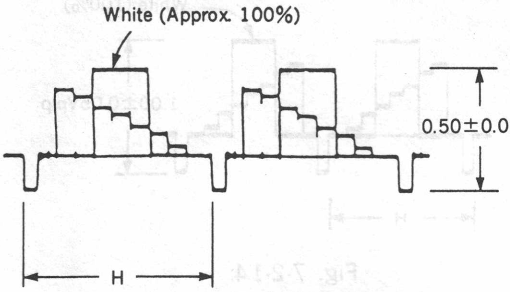


Fig. 7-2-18.

2-5-7. L Mode Y FM Carrier Frequency, Y FM Deviation Adjustment

Note 1: After this adjustment, be sure to perform ”2-5-8. E Mode Y FM Carrier Frequency, Y FM Deviation Adjustment”.

Note 2: The S Video Line output terminal should be terminated at 75Ω.

(1) L Mode Y FM Carrier Frequency Adjustment (VI-121 Board)

Mode	E-E
Signal	No signal (select Line in)
Measurement point	IC105 pin ㊴ (Y RF OUT)
Measuring instrument	Frequency counter Oscilloscope
Adjustment element	RV111
Specified value	4.38±0.05MHz

Note: A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Adjustment Method]

1) Insert MP type cassette tape.
2) Use RV111 to adjust to 4.38±0.05MHz.

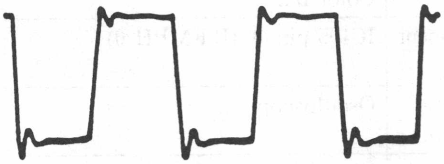


Fig. 7-2-19.

(2) L Mode Y FM Deviation Adjustment (VI-121 Board)

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement point	S Video Line Output, Y Signal terminal
Measuring instrument	Oscilloscope
Adjustment element	RV110
Specified value	Playback level should be at 1.00±0.05Vp-p.

[Adjustment Method]

1) Insert MP type cassette tape.
2) Record color bar signal.
3) Play back the recorded signal.
4) Check the playback output level.
   Specification: 1.00±0.05Vp-p
5) If the specification is not met, rotate RV110 as directed below and then repeat Steps 1) to 4).

	Direction of Rotating RV110
Over specified value	Counterclockwise (↶)
Below specified value	Clockwise (↷)

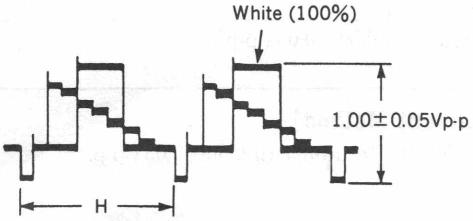


Fig. 7-2-20.

2-5-8. E Mode Y FM Carrier Frequency, Y FM Deviation Adjustment

Note 1 : When performing this adjustment, it is a prerequisite that "2-5-7. L Mode FM Carrier Frequency, Y FM Deviation Adjustment" has been completed.

Note 2 : The S Video Line output terminal should be terminated at 75Ω.

(1) E Mode Y FM Carrier Frequency Adjustment (VI-121 Board)

Mode	E-E
Signal	No signal (select Line in)
Measurement point	IC105 pin ㊴ (Y RF OUT)
Measuring instrument	Frequency counter Oscilloscope
Adjustment element	RV109
Specified value	5.96±0.05MHz

Note : A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Adjustment Method]

1) Insert ME type cassette tape.
2) Use RV109 to adjust to 5.96±0.05MHz.

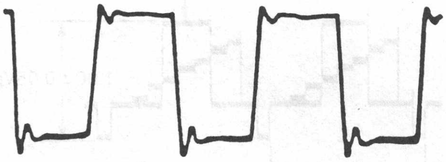


Fig. 7-2-21.

(2) E Mode Y FM Deviation Adjustment (VI-121 Board)

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement point	S Video Line Output, Y Signal terminal
Measuring instrument	Oscilloscope
Adjustment element	RV108
Specified value	Playback level should be at 1.00±0.05Vp-p.

[Adjustment Method]

1) Insert ME type cassette tape.
2) Record color bar signal.
3) Play back the recorded signal.
4) Check the playback output level.
   Specification: 1.00±0.05Vp-p
5) If the specification is not met, rotate RV108 as directed below and then repeat Steps 1) to 4).

	Direction of Rotating RV108
Over specified value	Counterclockwise (↺)
Below specified value	Clockwise (↻)

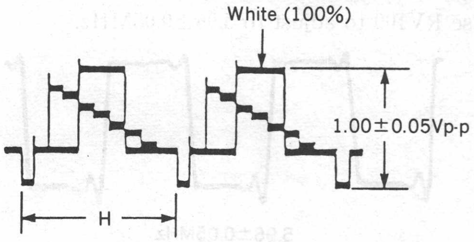


Fig. 7-2-22.

2-5-9. Chroma Emphasis Adjustment (VI-121 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC105 pin ⑧ (B.EMPH 0)
Measuring instrument	Oscilloscope
Adjustment element	RV113
Specified value	f0 component should be reduced to a minimum.

[Adjustment Method]

1) Adjust RV113 to allow the latter half of the yellow component in the chroma signal to have a minimum amplitude.

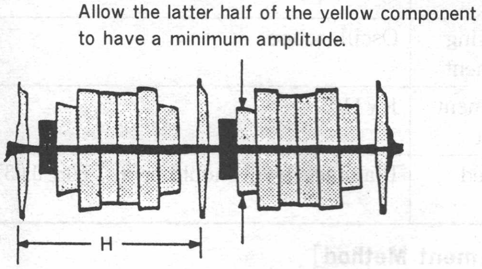

Allow the latter half of the yellow component to have a minimum amplitude.
H

Fig. 7-2-23.

2-5-10. L Mode De-emphasis Level Adjustment (VI-121 Board)

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-5NSP)
Measurement point	IC105 pin ⑰ (Y CCD OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV102
Specified value	0.50±0.05Vp-p

[Adjustment Method]

1) Use RV102 to adjust to 0.50±0.05Vp-p.

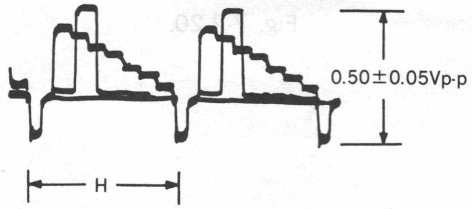


Fig. 7-2-24.

2-5-11. L Mode Playback Level Adjustment (VI-121 Board)

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-5NSP)
Measurement point	CN101 pin ⑧ (DI Y (X))
Measuring instrument	Oscilloscope
Adjustment element	RV105
Specified value	1.00±0.01Vp-p

[Adjustment Method]

1) Use RV105 to adjust to 1.00±0.01Vp-p.

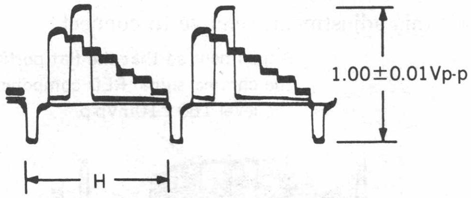


Fig. 7-2-25.

2-5-12. E Mode De-emphasis Level Adjustment (VI-121 Board)

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-8NSE)
Measurement point	IC105 pin ⑰ (Y CCD OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV101
Specified value	0.50±0.05Vp-p

[Adjustment Method]

1) Use RV101 to adjust to 0.50±0.05Vp-p.

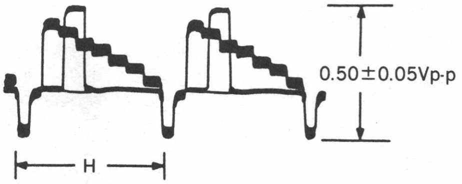


Fig. 7-2-26.

2-5-13. E Mode Playback Level Adjustment (VI-121 Board)

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-8NSE)
Measurement point	CN101 pin ⑧ (DI Y (X))
Measuring instrument	Oscilloscope
Adjustment element	RV104
Specified value	1.00±0.01Vp-p

[Adjustment Method]

1) Use RV104 to adjust to 1.00±0.01Vp-p.

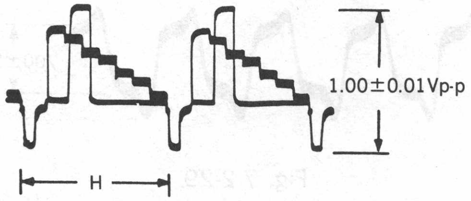


Fig. 7-2-27.

2-5-14. Recording Chroma Level Pre Adjustment (VI-121 Board)

Mode	E-E
Signal	Color bar
Measurement point	Q701 (Emitter)
Measuring instrument	Oscilloscope
Adjustment element	RV705
Specified value	150±10mVp-p

[Adjustment Method]

1) Insert ME type cassette tape.
2) Use RV705 to adjust to 150±10mVp-p..

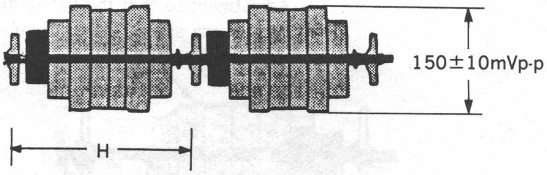


Fig. 7-2-28.

2-5-15. Recording Y Level Adjustment (VI-121 Board)

Mode	E-E
Signal	No signal (select Line in)
Measurement point	CN105 pin ⑰ (REC Y/C (X))
Measuring instrument	Oscilloscope (20MHz bandwidth)
Adjustment element	RV701
Specified value	700±10mVp-p

Note: Set an oscilloscope to 20MHz bandwidth.

[Adjustment Method]

1) Insert ME tape.
2) Use RV701 to adjust to 700±10mVp-p.

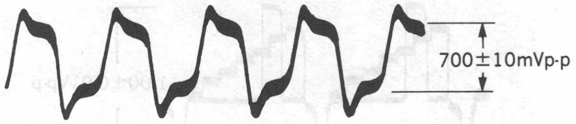


Fig. 7-2-29.

2-5-16. L Mode Recording Chroma Level Adjustment (VI-121 Board)

Mode	E-E
Signal	Color bar
Measurement point	CN105 pin ⑰ (REC RF)
Measuring instrument	Oscilloscope
Adjustment element	RV702
Specified value	120±10mVp-p

[Adjustment Method]

1) Connect between emitter and collector (+B) of Q716.
2) Insert MP type cassette tape.
3) Adjust RV702 so that the flat portion of the chroma signal red component has the level 120±10mVp-p.
4) After this adjustment, remove to connect.

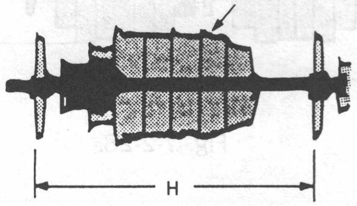

Adjustment so that the flat portion of the chroma signal RED component has the level 120±10mVp-p.

Fig. 7-2-30.

2-5-17. E Mode Recording Chroma Level Adjustment (VI-121 Board)

Mode	Record
Signal	Color bar
Measurement point	CN105 pin ⑰ (REC RF)
Measuring instrument	Oscilloscope
Adjustment element	RV703
Specified value	160±10mVp-p

[Adjustment Method]

1) Connect between emitter and collector (+B) of Q716.
2) Insert ME type cassette tape.
3) Record color bar signal.
4) Adjust RV703 so that the flat portion of the chroma signal red component has the level 160±10mVp-p.
5) After this adjustment, remove to connect.

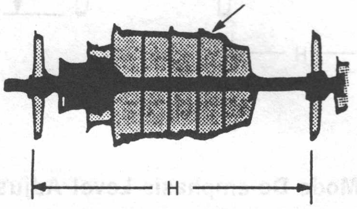

Adjustment so that the flat portion of the chroma signal RED component has the level 160±10mVp-p.

Fig. 7-2-31.

2-5-18. Y/Chroma Adjustment (WC-10 Board)

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-5NSP)
Measurement point	Y Signal: CN002 pin ⑬ C Signal: CN002 pin ⑮
Measuring instrument	Oscilloscope
Adjustment element	RV003
Specified value	0±50nS

[Adjustment Method]

1) Connect CH1 of an oscilloscope with CN002 pin ⑬ and CH2 with CN002 pin ⑮.
2) Match waveform on CH1 with waveform on CH2, and use RV003 to adjust so that Y coincides with C at point a.

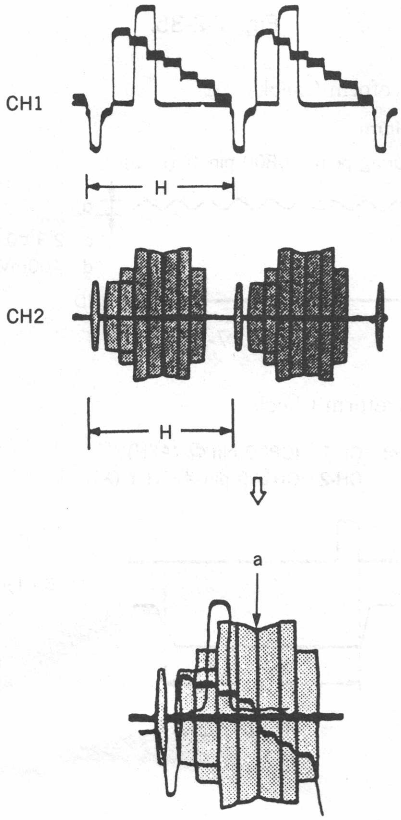


Fig. 7-2-32.

2-5-19. Carrier Leak Adjustment (WC-10 Board)

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-5NSP)
Measurement point	Video Line Output terminal
Measuring instrument	Vector scope
Adjustment element	RV001 RV002
specified value	Adjust the carrier to the center.

[Adjustment Method]

1) Use RV001 and RV002 to adjust so that the carrier is in the center of the scope.

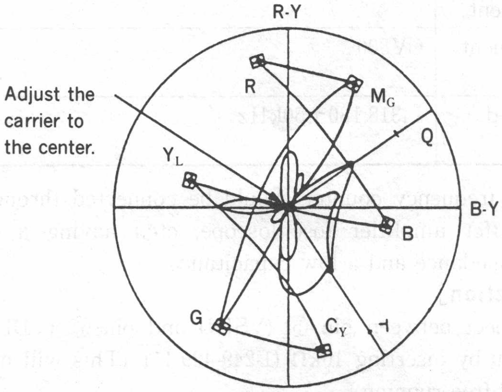

Adjust the carrier to the center.

Fig. 7-2-33.

2-6. DIGITAL SYSTEM ADJUSTMENTS

The adjustments provided in Digital System Adjustments should be performed in the following sequence.

[Adjustment sequence]

1. AFC Adjustment
2. APC Adjustment
3. Read Clock (YRCK) Adjustment
4. Y Output Level Adjustment

2-6-1. AFC Adjustment (DI-51 Board)

Mode	Playback
Signal	Alignment tape: For operation check (WR5-5NSP or WR5-8NSE)
Measurement point	IC800 pin ⑰ (YWCK) (CL820 or CL821)
Measuring instrument	Frequency counter
Adjustment element	CV800
Specified value	14318.180±50kHz

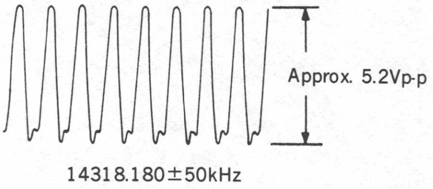
Note: A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Connection]

1) Connect between pin ⑤ (VSIN) and pin ㊸ (VDD) of IC800 by inserting 10kΩ (1-249-429-11). (This will make AFC free running.)
2) Short between pin ⑩ (PWM) and pin ⑪ (PEO) of IC800.

[Adjustment Method]

1) Use CV800 to adjust to 14318.180±50kHz.
2) After this adjustment, perform the following check.


Approx. 5.2Vp-p

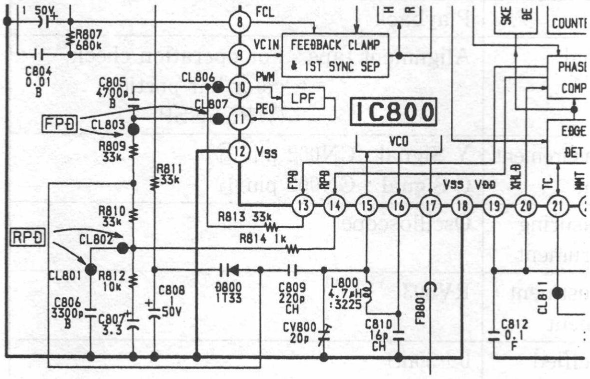
14318.180±50kHz

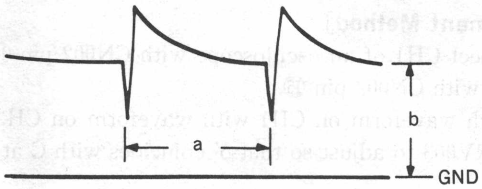
Fig. 7-2-34.

[Connection]

1) Remove the resistor inserted between pin ⑤ (VSIN) and pin ㊸ (VDD) of IC800. (This will enter the AFC mode.)
2) Open between pin ⑩ (PWM) and pin ⑪ (PEO) of IC800.
3) Check the waveform at the following measuring points.

● (RPD) Waveform Check

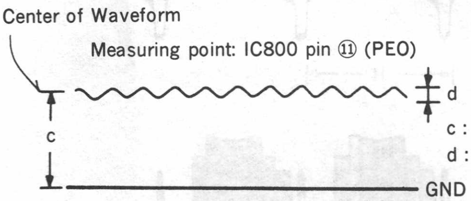

1 50V
R807 680k
C804 0.01 B
C805 4700p B
CL806
CL807
FPD
CL803
R809 33k
R811 33k
R810 33k
RPD
CL802
CL801
R812 10k
C806 3300p B
C807 3.3
C808 1 50V
D800 1T33
C809 220p CH
CV800 20p
L800 4.7μH :3225
C810 16p CH
FB801
C812 0.1 F
CL811
R813 33k
R814 1k
FCL
VCIN
PWM
PEO
Vss
FEEDBACK CLAMP & 1ST SYNC SEP
LPF
IC800
VCO
FPD
RPD
Vss
VDD
XHLD
TC
HHT
SKE
DE
COUNTE
PHASE COMP
EDGE DET
H
R
8
9
10
11
12
13
14
15
16
17
18
19
20
21



a : 63.4±1.0μsec
b : 2.4±0.5V

Fig. 7-2-35.

● (FPD) Waveform Check

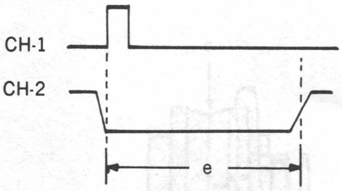

Center of Waveform
Measuring point: IC800 pin ⑪ (PEO)
c
d
GND

c : 2.3±0.4V
d : 400mVp-p or less

Fig. 7-2-36.

● (AFH) Waveform Check

Measuring point : CH-1 IC800 pin ㉗ (AFH)
CH-2 CN100 pin ④ (VI Y (X))



e: 5±1μsec

Fig. 7-2-37.

2-6-2. APC Adjustment (DI-51 Board)

Mode	Playback
Signal	Alignment tape: For operation check (WR5-5NSP or WR5-8NSE)
Measurement point	IC300 pin ㉜ (CWCK)
Measuring instrument	Frequency counter
Adjustment element	CV300
Specified value	17734475±50Hz

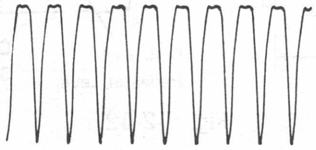
Note : A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Connection]

1) Open pin ② (VI C (X)) of CN100.
2) Connect between CL252 (Q253 (E)) and GND by inserting 0.01μF capacitor (1-102-129-11).

[Adjustment Method]

1) Use CV300 to adjust to 17734475±50Hz.
2) After this adjustment, perform the following check.



17734475±50Hz

Fig. 7-2-38.

[Connection]

1) Remove the capacitor inserted between CL252 (Q253 (E)) and GND.
2) Connect pin ② (VI C (X)) of CN100. (This will enter the APC mode.)
3) Check the waveform at pin (51) of IC300.

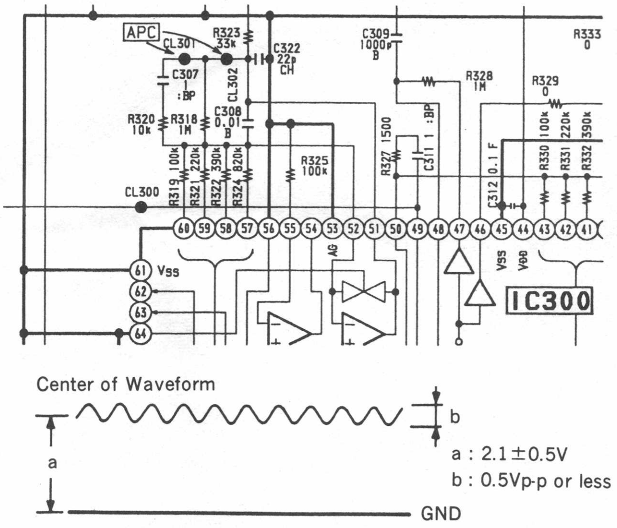

APC
CL301
R323 33k
C322 22p CH
C309 1000p B
R333 0
C307 1 :BP
CL302
R328 1M
R329 0
R320 10k
R318 1M
C308 0.01 B
R325 100k
R327 1500
C311 1 :BP
C312 0.1 F
R330 100k
R331 220k
R332 390k
CL300
R319 100k
R321 220k
R322 390k
R324 820k
60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41
61 Vss
62
63
64
AG
Vss
VDD
IC300
Center of Waveform
a
b
a : 2.1±0.5V
b : 0.5Vp-p or less
GND

Fig. 7-2-39.

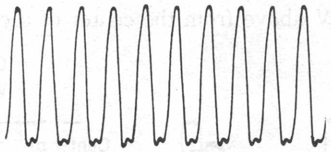
2-6-3. Read Clock (YRCK) Adjustment (DI-51 Board)

Mode	Playback
Signal	Alignment tape: For operation check (WR5-5NSP or WR5-8NSE)
Measurement point	IC500 pin ① (YWCK) (CL504 or CL505)
Measuring instrument	Frequency counter
Adjustment element	CV500
Specified value	14318180±200Hz

Note : A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Adjustment Method]

1) Use CV500 to adjust to 14318180±200Hz.



14318180±200Hz

Fig. 7-2-40.

2-6-4. Y Output Level Adjustment (DI-51 Board)

Note : For this Adjustment, the sequence of adjustments (1) and (2) should be performed twice.

(1) D/A Amplifier Gain Adjustment

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-5NSP or WR5-8NSE)
Measurement point	CN100 pin ⑪ (DI Y)
Measuring instrument	Oscilloscope
Adjustment element	RV700
Specified value	240±10mV

[Adjustment Method]

1) Adjust RV700 so that the center of the pedestal level is 240±10mV above from the center of the sync tip level.

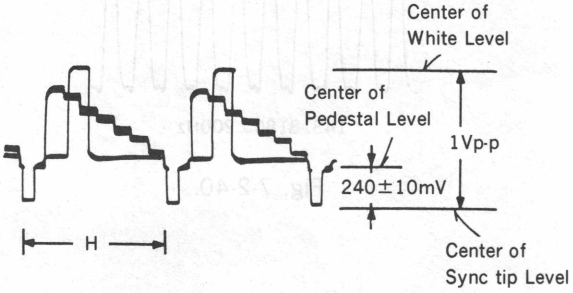

Center of
White Level
Center of
Pedestal Level
1Vp-p
240±10mV
H
Center of
Sync tip Level

Fig. 7-2-41.

(2) A/D Amplifier Gain Adjustment

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-5NSP or WR5-8NSE)
Measurement point	CN100 pin ⑪ (DI Y)
Measuring instrument	Oscilloscope
Adjustment element	RV200
Specified value	760±10mV

[Adjustment Method]

1) Adjust RV200 so that the center of the pedestal level is 760±10mV above from the center of sync tip level.

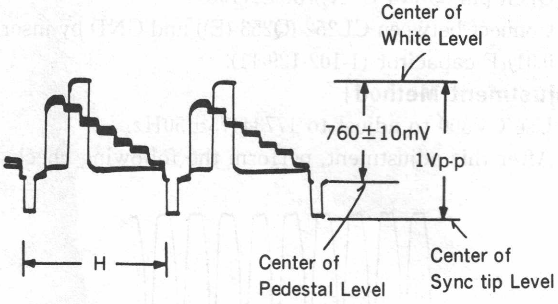

Center of
White Level
760±10mV
1Vp-p
H
Center of
Pedestal Level
Center of
Sync tip Level

Fig. 7-2-42.

2-7. CHARACTER GENERATOR SYSTEM CHECK

2-7-1. CG OSC CHECK (MA-173 Board)

Mode	Record
Signal	Arbitrary
Measurement point	IC705 pin ⑮ (EXD)
Measuring instrument	Frequency counter
Specified value	6.85±0.05MHz

Note : A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[CHECK Method]

1) Check to 6.85±0.05MHz.

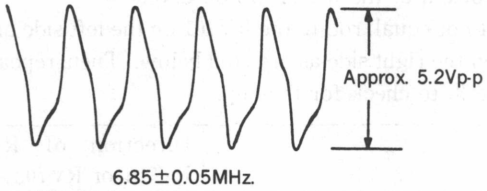


Fig. 7-2-43.

2-8. PCM AUDIO SYSTEM ADJUSTMENTS

Color bar signal should be used as Video signal input for performing this adjustment.

[Connection of Equipment for Audio Measurement]

In addition to equipment for video measurement, equipment for audio system measurement should be connected as illustrated below.

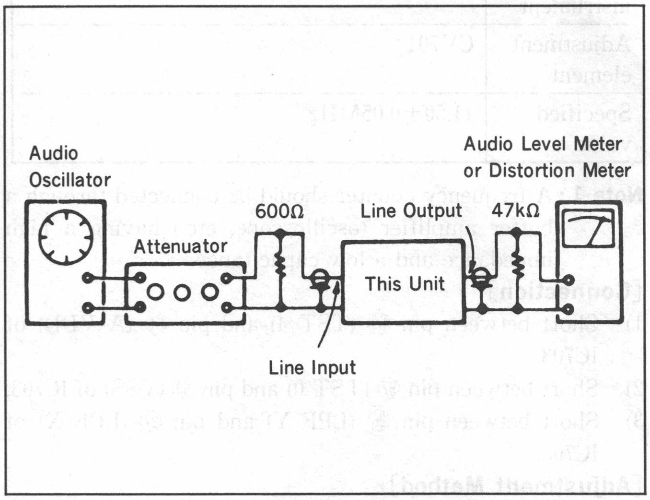


Fig. 7-2-44.

Unless otherwise specified, place the switches and controls of this unit in the following positions:

- ●Input Select switch ....LINE 1
- ●Audio Monitor (PCM/MIX/STD) switch ....PCM

The adjustments should be performed in the following sequence.

[Adjustment sequence]

1. Master Clock Adjustment
2. Recording Level Adjustment
3. Offset Adjustment
4. Playback VCO Check
5. Playback Level Adjustment
6. E-E Output Level Check
7. Overall Frequency Characteristic Check
8. Overall Distortion Factor Check
9. Overall Noise Level Check

2-8-1. Master Clock Adjustment (PC-61 Board)

Mode	Record
Signal	Arbitrary
Measurement point	IC703 pin ⑳ (MCK 1)
Measuring instrument	Frequency counter
Adjustment element	CV701
Specified value	11.50±0.05MHz

Note 1 : A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Connection]

1) Short between pin (89) (TST 4) and pin (81) (A VDD) of IC703.
2) Short between pin (97) (TST 0) and pin (90) (VSS) of IC703.
3) Short between pin ㉖ (LPF Y) and pin ㉗ (LPF X) of IC703.

[Adjustment Method]

1) Use CV701 to adjust to 11.50±0.05MHz.

Note 2 : After this adjustment, open the shorted pins.

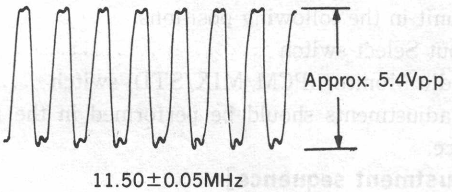


Fig. 7-2-45.

2-8-2. Recording Level Adjustment (PC-61 Board)

Mode	Record
Signal	400Hz, −7.5dBs
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Audio level meter
Adjustment element	RV703
Specified value	Left side: −7.5±0.5dBs Right side: ±1.5dBs with respect to left side level

[Adjustment Method]

1) Adjust RV703 so that the left side level is at −7.5±0.5dBs.
2) At this time, check that the right level is within ±1.5dBs of the left side level.

2-8-3. Offset Adjustment (PC-61 Board)

Mode	Self-record playback
Signal	400Hz, +3dBs
Measurement point	Left side: IC701 pin ⑫ Right side: IC701 pin ⑰
Measuring instrument	Oscilloscope
Adjustment element	Left side: RV701 Right side: RV702
Specified value	Top and bottom clips observed on waveform should be equal with each other.

[Adjustment Method]

1) Record signal.
2) Play back the recorded portion.
3) Check that the clip at the top is equal with the clip at the bottom of the waveform observed.
4) If not equal, rotate the RV701 on the left side and RV702 on the right side as directed below. Then, repeat Steps 1) to 3) to check for the clip.

	Direction of Rotating RV701 or RV702
Top clip less	Counterclockwise (↺)
Top clip more	Clockwise (↻)

Note : In this adjustment, the left and right sides will be affected by each other. Alternately adjust the left and right sides.

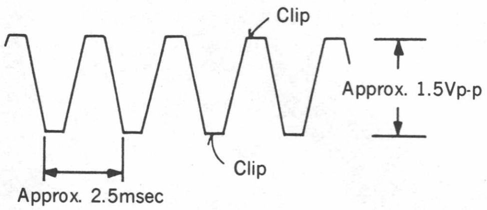


Fig. 7-2-46.

2-8-4. Playback VCO Check (PC-61 Board)

Mode	Playback, Fast Forward Search, Rewind Search
Signal	Arbitrary tape (Tape which does not contain PCM signal.)
Measurement point	CN703 pin ② (PB VCO)
Measuring instrument	Frequency counter
Specified value	Playback : 11.58±0.05MHz Fast Forward Search: 11.180±0.05MHz Rewind Search : 12.210±0.05MHz FF : 11.856±0.05MHz REW : 12.081±0.05MHz

Note 1: A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

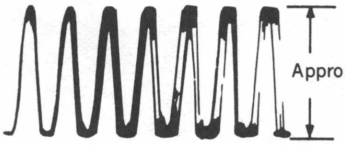
[Connection]

1) Connect pin ① (TEST) of CN703 to 5V.

[Adjustment Method]

1) Use the remote commander to enter the Playback mode.
2) Check to 11.58±0.05MHz.
3) Use the remote commander to execute Fast Forward Search. (Press SERACH on "Fast Forward" side.)
4) Check to 11.180±0.05MHz.
5) Use the remote commander to execute Rewind Search. (Press SERACH on "Rewind" side.)
6) Check to 12.210±0.05MHz.
7) Use the remote commander to enter the FF mode.
8) Check to 11.856±0.05MHz.
9) Use the remote commander to enter the REW mode.
10) Check to 12.081±0.05MHz.

Note 2: After this adjustment, open pin ① of CN703.



During Playback : 11.58±0.05MHz
During Fast Forward Search : 11.180±0.05MHz
During Rewind Search : 12.210±0.05MHz
During FF : 11.856±0.05MHz
During REW : 12.081±0.05MHz

Fig. 7-2-47.

2-8-5. Playback Level Adjustment (PC-61 Board)

Mode	Playback
Signal	Alignment tape: For operation check, 400Hz portion (WR5-9NS)
Measurement point	Audio Line Output terminal, left and right
Measuring instrument	Audio level meter
Adjustment element	RV705
Specified value	Left side: −7.5±0.3dBs Right side: ±1.5dBs with respect to left side level

[Adjustment Method]

1) Adjust RV705 so that the left side level is at −7.5±0.3dBs.
2) At this time, check that the right level is within ±1.5dBs of the left side level.

2-8-6. E-E Output Level Check

Mode	E-E
Signal	400Hz, −7.5dBs
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Audio level meter
Specified value	−7.5±3dBs

[Check Method]

1) Place the Recording Level control in $\boxed{5}$ position.
2) Check that the indicated value of a peak level meter is −3 to +3dBs.
3) Check that the respective levels of Audio Line Output terminals, left and right are −7.5±3dBs.

2-8-7. Overall Frequency Characteristic Adjustment

Mode	Self-record playback
Signal	Ⓐ 400Hz, −7.5dBs Ⓑ 20Hz, −7.5dBs Ⓒ 14kHz, −7.5dBs : Audio Line Input terminals, left and right
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Audio level meter
Specified value	The playback output levels of 20Hz and 14kHz should be 0±3dBs with 400Hz playback output level at 0dBs.

[Check Method]

1) Record signals Ⓐ to Ⓒ in turn.
2) Play back the recorded portion.
3) Check that the respective playback output levels of 20Hz and 14kHz are 0±3dBs with 400Hz playback output level at 0dBs.

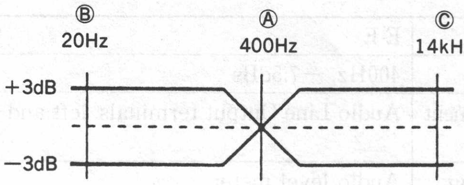


Fig. 7-2-48.

2-8-8. Overall Distortion Factor Check

Mode	Self-record playback
Signal	400Hz, −7.5dBs : Audio Line Input terminals, left and right
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Distortion meter
Specified value	0.35% or less

[Check Method]

1) Record signal.
2) Play back the recorded portion.
3) Check that the distortion factor is 0.35% or less.

2-8-9. Overall Noise Level Check

Mode	Self-record playback
Signal	No signal (Insert a shorting plug into the Audio Line Input jacks, left and right.)
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Audio level meter
Specified value	−82dBs or less Note)

[Check Method]

1) Record.
2) Play back recorded portion.
3) Check that the noise level is −82dBs or less.

Note : This is a value when an IHF-A weighing filter is used.

2-9. AFM AUDIO SYSTEM ADJUSTMENTS

Color bar signal should be used as Video signal input for performing this adjustment.

[Connection of Equipment for Audio Measurement]

In addition to equipment for video measurement, the audio measurement equipment should be connected as illustrated below.

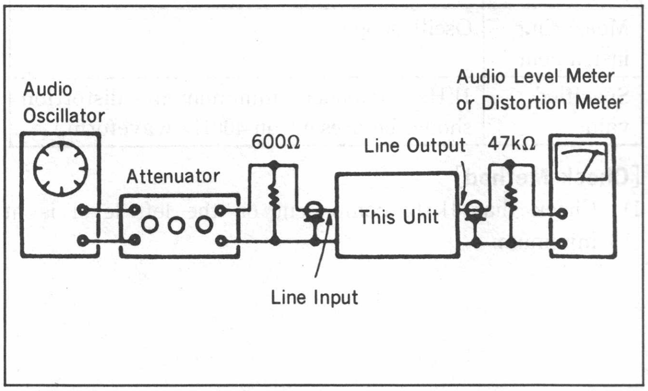


Fig. 7-2-49.

Unless otherwise specified, place the switches and controls of this unit in the following positions:

- ●Input Select switch ....LINE 1
- ●Audio Monitor (PCM/MIX/STD) switch............STD

The adjustments should be performed in the following sequence.

[Adjustment sequence]

1. Carrier Frequency 1.5MHz Check
2. Carrier Frequency 1.7MHz Check
3. 1.5MHz Deviation Adjustment
4. 1.7MHz Deviation Adjustment
5. Playback Separation 2 Adjustment
6. Playback Separation 1 Adjustment
7. E-E Output Level Check
8. Overall Frequency Characteristic Check
9. Overall Distortion Factor Check
10. Overall Noise Check

2-9-1. Carrier Frequency 1.5MHz Check (MA-173 Board)

Mode	Record
Signal	No signal
Measurement point	IC501 pin (83) (VCO OUT)
Measuring instrument	Frequency counter
Specified value	1500±3kHz

Note 1 : A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Check Method]

1) Check to 1500±3kHz.

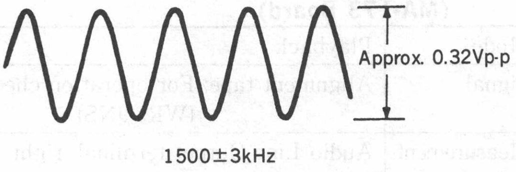


Fig. 7-2-50.

2-9-2. Carrier Frequency 1.7MHz Check (MA-173 Board)

Mode	Record
Signal	No signal
Measurement point	IC501 pin (65) (VCO OUT)
Measuring instrument	Frequency counter
Specified value	1700±3kHz

Note 1 : A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Check Method]

1) Check to 1700±3kHz.

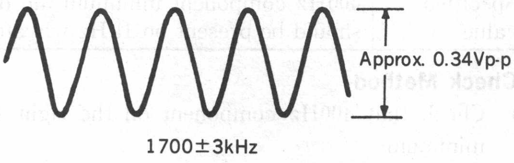


Fig. 7-2-51.

2-9-3. 1.5MHz Deviation Adjustment (MA-173 Board)

Mode	Playback
Signal	Alignment tape: For operation check (WR5-9NS)
Measurement point	Audio Line Output terminal, left
Measuring instrument	Audio level meter
Adjustment element	RV501
Specified value	−7.5±0.5dBs

[Adjustment Method]

1) Use RV501 to adjust to −7.5±0.5dBs.

2-9-4. 1.7MHz Deviation Adjustment (MA-173 Board)

Mode	Playback
Signal	Alignment tape: For operation check (WR5-9NS)
Measurement point	Audio Line Output terminal, right
Measuring instrument	Audio level meter
Adjustment element	RV502
Specified value	−7.5±0.5dBs

[Adjustment Method]

1) Use RV502 to adjust to −7.5±0.5dBs.

2-9-5. Playback Separation 2 Check (MA-173 Board)

Mode	Playback
Signal	Alignment tape: For operation check, stereo portion (WR5-9NS)
Measurement point	Audio Line Output terminal, right
Measuring instrument	Oscilloscope
Specified value	400Hz component minimum (no distortion should be present on 1kHz waveform.)

[Check Method]

1) Check that 400Hz component on the right level is at minimum.

2-9-6. Playback Separation 1 Check (MA-173 Board)

Mode	Playback
Signal	Alignment tape: For operation check, stereo portion (WR5-9NS)
Measurement point	Audio Line Output terminal, left
Measuring instrument	Oscilloscope
Specified value	1kHz component minimum (no distortion should be present on 400Hz waveform.)

[Check Method]

1) Check that 1kHz component on the left level is at minimum.

2-9-7. E-E Output Level Check

Mode	E-E
Signal	400Hz, −7.5dBs
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Audio level meter
Specified value	−7.5±3dBs

[Check Method]

1) Check that the indicated value of a peak level meter is −3 to +3dBs.
2) Check that the respective levels of Audio Line Output terminals, left and right are −7.5±3dBs.

2-9-8. Overall Frequency Characteristic Check

Mode	Self-record playback
Signal	Ⓐ 400Hz, −17.5dBs Ⓑ 20Hz, −17.5dBs Ⓒ 14kHz, −17.5dBs : Audio Line Input terminals, left and right
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Audio level meter
Specified value	The playback output level is 0dB at 400Hz, check that it is −3±3dB at 20Hz and 0±3dB at 14kHz.

[Check Method]

1) Record signals Ⓐ to Ⓒ in turn.
2) Play back the recorded portion.
3) When the playback output level is 0dB at 400Hz, check that it is −3±3dB at 20Hz and 0±3dB at 14kHz.

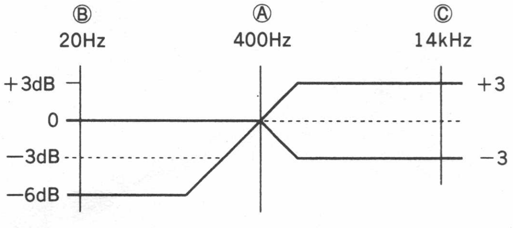


Fig. 7-2-52.

2-9-9. Overall Distortion Factor Check

Mode	Self-record playback (STEREO mode)
Signal	400Hz, −7.5dBs : Audio Line Input terminals, left and right
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Distortion meter
Specified value	Left side: 1.0% or less Note) Right side: 1.5% or less Note)

[Check Method]

1) Record signal.
2) Play back the recorded portion.
3) Check that the distortion factor is 1.0% or less on the left side and 1.5% or less on the right side Note).

Note : These are values when a 200Hz - 6kHz BPF is used.

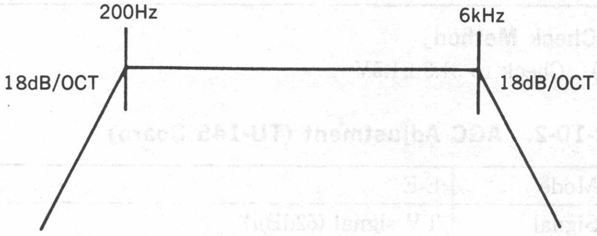


Fig. 7-2-53.

2-9-10. Overall Noise Level Check

Mode	Self-record playback
Signal	No signal (Insert a shorting plug into the Audio Line Input jacks, left and right.)
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Audio level meter
Specified value	Left side: −68dBs or less Note) Right side: −68dBs or less Note)

[Check Method]

1) Record.
2) Play back recorded portion.
3) Check that the noise level is −68dBs or less on the left side and −68dBs on the right side.

Note : These are values when an IHF-A weighing filter is used.

2-10. TUNER SYSTEM ADJUSTMENTS

This adjustment should be made in the VHF/UHF Broadcasting Listening mode.

The adjustments should be made in the following sequence.

[Adjustment sequence]

1. 30V Voltage Check
2. AGC Adjustment
3. Separation Check

2-10-1. 30V Voltage Check (TU-145 Board)

Signal	Arbitrary
Measurement point	Q901 (Emitter)
Measuring instrument	Digital voltmeter
Specified value	31.3±1.5V

[Check Method]

1) Check to 31.3±1.5V

2-10-2. AGC Adjustment (TU-145 Board)

Mode	E-E
Signal	TV signal (62dBμ)
Measurement point	TU902 pin ⑦ (RF AGC)
Measuring instrument	Digital voltmeter
Adjustment element	AGC VR (TU902)
Specified value	6±0.5V

[Adjustment Method]

1) Use AGC VR to adjust the voltage value to 6±0.5V.
2) When the TV signal input is changed from 58dB to 62dB, check that the voltage at TU902 pin ⑦ changes from less than 6.0V to 6.0V or more.

2-10-3. Separation Check (TU-145 Board)

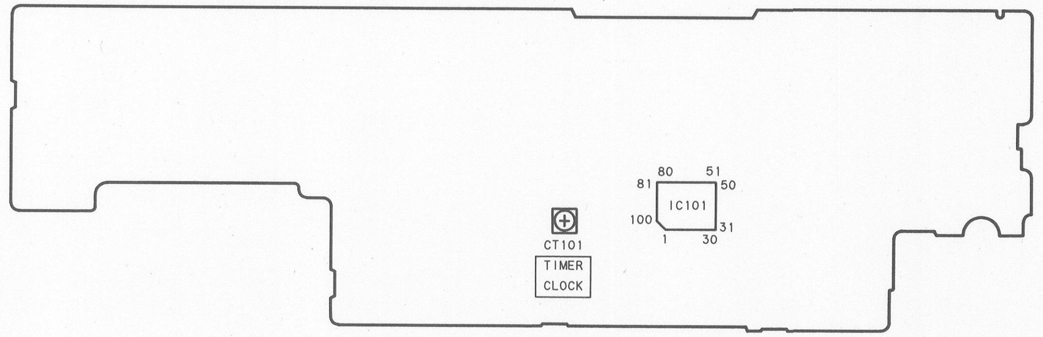
Signal	Stereo L CH: 400Hz, 100% modulated R CH: No modulation
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Oscilloscope
Specified value	Rch output is minimized

[Check Method]

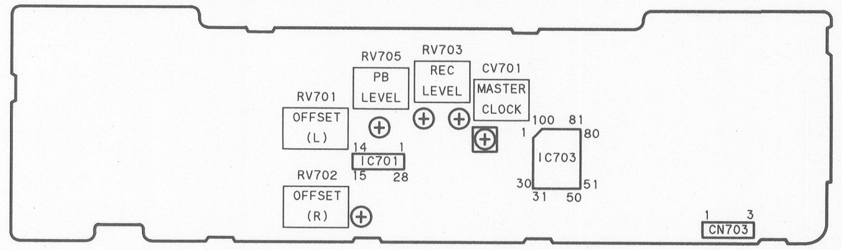
1) Set a sound multiplex signal generator to Stereo mode. Set L CH to 400Hz, 100% modulated.
2) Connect an oscilloscope to the R channel of Audio Line Output.
3) Check that R CH output is minimized.

2-11. ADJUSTING PARTS LOCATION DIAGRAM

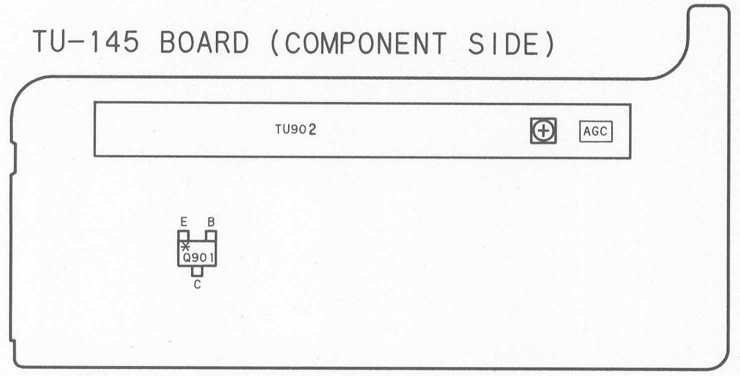
FM-16 BOARD (COMPONENT SIDE)


80
51
81
50
IC101
100
31
1
30
CT101
TIMER CLOCK

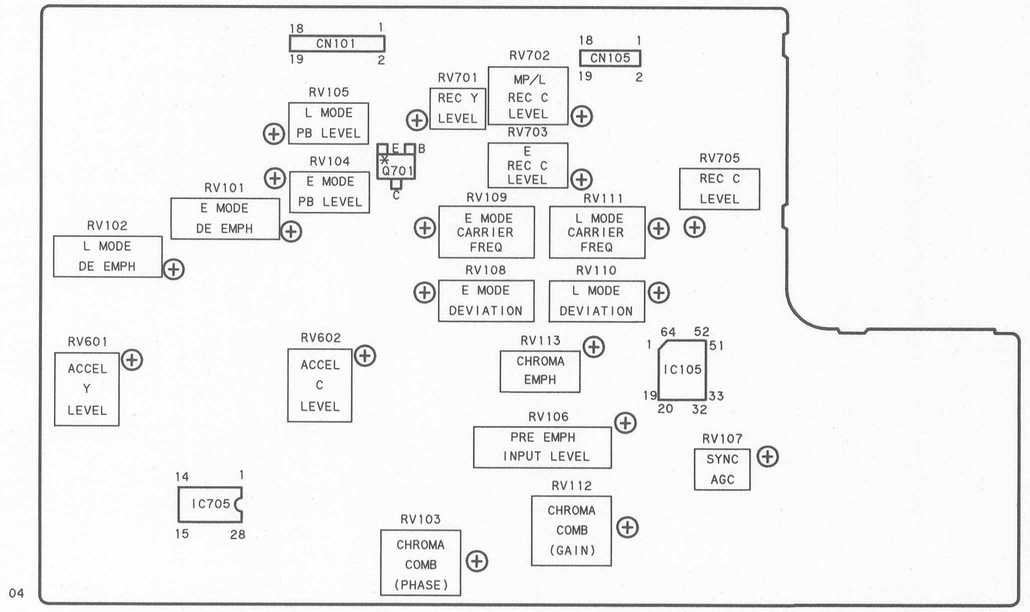
PC-61 BOARD (COMPONENT SIDE)


RV705
PB LEVEL
RV703
REC LEVEL
CV701
MASTER CLOCK
RV701
OFFSET (L)
14
1
IC701
15
28
RV702
OFFSET (R)
100
81
1
80
IC703
30
51
31
50
1
3
CN703

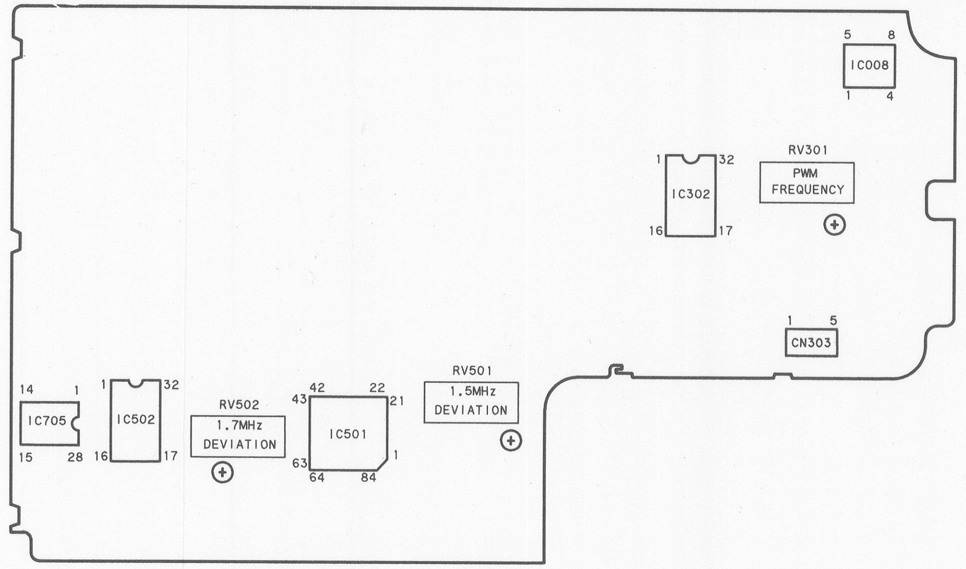
TU-145 BOARD (COMPONENT SIDE)


TU902
AGC
E
B
Q901
C

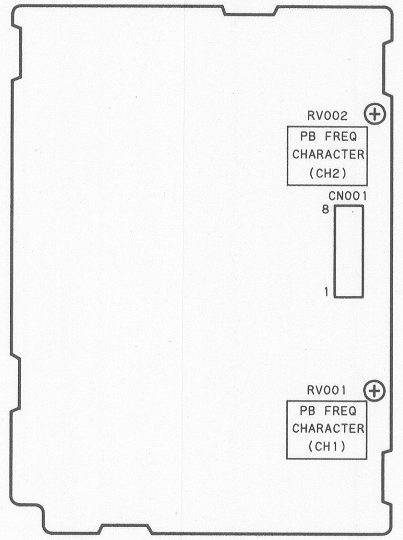
VI-121 BOARD (COMPONENT SIDE)


18
1
CN101
19
2
RV702
MP/L REC C LEVEL
18
1
CN105
19
2
RV701
REC Y LEVEL
RV105
L MODE PB LEVEL
RV703
E REC C LEVEL
E
B
*
Q701
C
RV104
E MODE PB LEVEL
RV705
REC C LEVEL
RV101
E MODE DE EMPH
RV102
L MODE DE EMPH
RV109
E MODE CARRIER FREQ
RV111
L MODE CARRIER FREQ
RV108
E MODE DEVIATION
RV110
L MODE DEVIATION
RV601
ACCEL Y LEVEL
RV602
ACCEL C LEVEL
RV113
CHROMA EMPH
64
52
1
51
IC105
19
33
20
32
RV106
PRE EMPH INPUT LEVEL
RV107
SYNC AGC
14
1
IC705
15
28
RV112
CHROMA COMB (GAIN)
RV103
CHROMA COMB (PHASE)
04

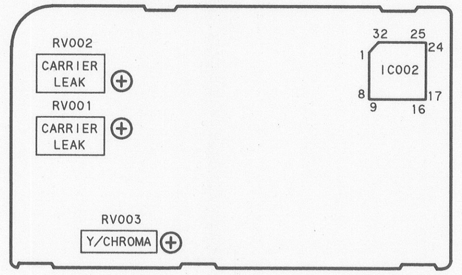
MA-173 BOARD (COMPONENT SIDE)


5
8
IC008
1
4
1
32
IC302
16
17
RV301
PWM FREQUENCY
1
5
CN303
14
1
IC705
15
28
1
32
IC502
16
17
RV502
1.7MHz DEVIATION
42
22
43
21
IC501
63
1
64
84
RV501
1.5MHz DEVIATION

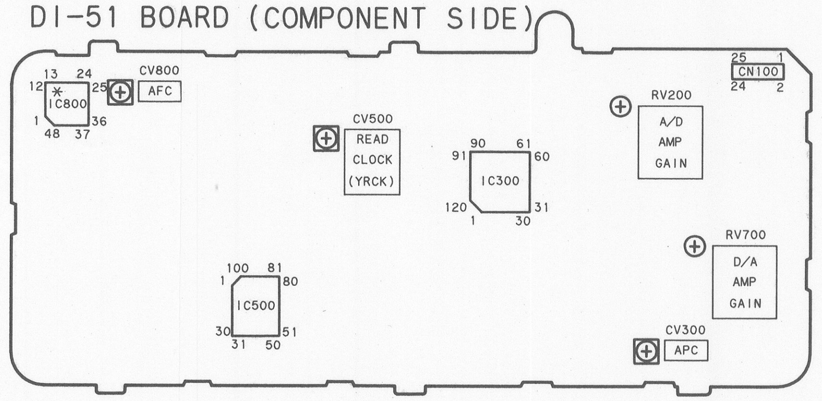
RP-165 BOARD
(COMPONENT SIDE)


RV002
PB FREQ CHARACTER (CH2)
CN001
8
1
RV001
PB FREQ CHARACTER (CH1)

WC-10 BOARD
(COMPONENT SIDE)


RV002
CARRIER LEAK
RV001
CARRIER LEAK
32
25
1
24
IC002
8
17
9
16
RV003
Y/CHROMA

DI-51 BOARD (COMPONENT SIDE)


13
24
12
*
IC800
25
1
36
48
37
CV800
AFC
25
1
CN100
24
2
CV500
READ CLOCK (YRCK)
90
61
91
60
IC300
120
31
1
30
RV200
A/D AMP GAIN
100
81
1
80
IC500
30
51
31
50
RV700
D/A AMP GAIN
CV300
APC

*: PARTS OF REAR SIDE.

997354911

Sony Corporation
Home Video Group

English
94C0434-1
Printed in Japan
© 1994. 3
Published by CV Quality Engineering DIV.